

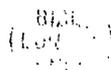
PROTOTYPE THEORY AND  
THE MEANING OF VERBS,  
WITH SPECIAL REFERENCE TO  
MODERN GREEK VERBS OF MOTION

by

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## ABSTRACT

The present study tests the applicability of Prototype theory, selected among competing theoretical frameworks, to a lexical semantic analysis of verbs, with particular reference to the previously uncharted domain of Modern Greek verbs of motion. A number of the characteristics which Prototype theory established in connection with certain types of nouns are demonstrated to pertain to verbs: their meaning is not a matter of necessary and sufficient conditions, but rather a matter of gradation; their attributes combine in non-arbitrary ways to form categories with fuzzy boundaries the members of which are non-equivalent. Two categorizations of motion verbs according to 'major classificatory properties' are discussed at length. First, 'states', 'processes' and 'events' are shown to constitute a continuum, the focal points of which are identifiable on the basis of the interaction of factors such as spatio-temporal specifications, aspect, inherent semantic properties of individual verbs and the nature of the 'theme' (moving object). Second, 'causativity' and 'agentivity' are understood as distinct, to some extent, clusters of scalar properties and different Modern Greek motion verbs are shown to exhibit these properties to a greater or lesser degree. In seeking to determine which factors may be responsible for the formation of verb categories, it is recalled that the validity of the principle of 'family resemblance' and the method for identifying the 'basic' level of abstraction cannot be tested in the case of verbs. It is suggested that other factors may be operative, such as the relative 'salience' of certain combinations of properties, 'linguistic markedness', familiarity and frequency. This tentative conclusion is reinforced with respect to Modern Greek verbs of motion by the results of specific tests.

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\* Note : The major work for this dissertation was carried out during my years at SOAS and was substantially completed before 1983.

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## ABBREVIATIONS, NOTATION AND FORMAT OF EXAMPLES

A full listing of the abbreviations used in this text is given below:

Adv.	= adverb/adverbial
Adv.Phr.	= adverbial phrase
CA	= cluster analysis
CAUS	= causative
CC	= cross-classification
CL	= change of location
CP	= change of position
DC	= direct causation/causative
EC	= explicit causative
FS	= Formal Semantics
HCS	= hierarchical structuring scheme
IC	= indirect causation/causative
If.	= imperfect/imperfective
INTR	= intransitive
LC	= lexical causative
LOC	= locative
MG	= Modern Greek
MGMV	= Modern Greek motion verb
MV	= motion verb
NC	= natural class
NON-CAUS	= non-causative
NP	= noun phrase
NP <sub>LOC</sub>	= noun phrase of location
Pf.	= perfect/perfective
PP	= prepositional phrase
Prep.	= preposition
S	= sentence
SM	= self-moving
s.o.	= someone
S-P-E	= state(s)-process(es)-event(s)
SST	= semantic similarity sorting task
s.th.	= something

s.wh. = somewhere  
TR = transitive  
V = verb  
VP = verb phrase

Phonologically identical verbs appear as separate items with subscripts (e.g. 'roll<sub>1</sub>', 'roll<sub>2</sub>'). The subscripts are used to facilitate the description and are not meant as an indication that different items are involved rather than a single polysemous one.

Modern Greek examples appear in broad phonemic transcription. The following conventions are adopted: palatalization of /k/, /v/, /x/ and /g/ before front vowels is not marked; non-syllabic <i> is transcribed as /j/; prenasalisation of voiced plosives is not marked systematically. Titles of Greek newspapers, magazines and books and authors' names are transliterated, as are also the terms 'katharevousa', 'dimotiki' and 'Koine Nea Elliniki'. Modern Greek examples are followed by an English translation; a word-by-word gloss is also provided whenever this is considered necessary.

## INTRODUCTION

This thesis attempts a lexical semantic analysis of motion verbs, and in particular Modern Greek verbs of motion, within the framework of Prototype theory. While the method of approach adopted here has been extensively tested in domains covered by nouns, it has not previously been applied systematically to verbal categories. As a result, the analysis is both theoretical and descriptive, of necessity touching upon psycholinguistic theories of human categorization and philosophical discussions of the relation between linguistic expressions and extralinguistic reality.

Prototype theory - which is adopted in this study as a more appropriate method than componential analysis and semantic field theories - has raised a number of interesting issues which are examined here in connection with Modern Greek motion verbs. The main principles involved are the following:

- Word meaning is not a matter of necessary and sufficient conditions.
- Hyponyms are not equidistant from their superordinate; the members of a category are not equally representative of this category.
- Semantic properties are not arbitrarily combined to form categories.

The most important general issue, in my opinion, is gradation and the fuzziness of boundaries between semantic categories. All these tenets of Prototype theory seem equally relevant to the description of the semantic facts of verbs as well as of nouns.

Motion verbs constitute a fairly well-defined semantic field and exhibit a number of interesting properties also relevant to other verbal domains. The field has the additional merits of being highly structured, of containing many categories familiar to most native speakers and, what is more important, of involving categories more

readily describable in terms of perceptual and functional properties than those of most other verbal domains. This is perhaps the reason why a lot of linguistic research has been conducted in this area of the vocabulary of languages other than Modern Greek, especially English and German.

Modern Greek verbs of motion have never been systematically examined, which has necessitated the inclusion in this study of a considerable volume of data. The peculiar sociolinguistic situation of Modern Greek, namely the intermingling of 'katharevousa' (the 'puristic' language variety) and 'dimotiki' (the 'colloquial'/'popular' variety) presents special problems in several areas, from the collection of data and the formation of taxonomic structures to the assessment of prototypicality judgments of subjects.

Some of the tenets of Prototype theory, such as the identification of the 'basic level of abstraction' and the principle of 'family resemblance' for category formation cannot be readily tested in the case of verbs. A verification of these tenets presupposes the possibility of eliciting attributes (properties) of categories directly from native speakers, which is not evident in the case of verbs.

Nevertheless, it can be shown that native speakers do make reliable judgments on the relative distance between the inclusive category and its hyponyms in those cases where such taxonomic organization is well established. An important point is therefore raised concerning what such judgments are based on, i.e. what is responsible for the formation of categories in the case of verbs, and in the area under investigation in particular. This study does not aspire to provide answers to such important problems, especially as it is a piece of linguistic rather than psycholinguistic lexical semantics. It cannot, however, avoid testing the validity of certain proposals concerning the formation of categories, such as semantic similarity, number of shared properties; the relative salience of combinations of properties, and the nature of the 'basic' level of abstraction for verbs.

The structure of the present study is as follows:

Chapter 1 discusses at some length the search for an appropriate theoretical framework for the description to follow. It also includes a section on the delimitation of the field of motion verbs.

Chapters 2 and 3 contain an account of those properties of verbs which are here considered 'major classificatory properties', namely states-processes-events, causativity and agentivity.

Chapter 4 discusses the relations between Modern Greek verbs of motion and the 'minor properties' considered relevant for the description of the verbs in question. It provides an answer to the question of how the field is organized.

Chapter 5 reports the results of tests conducted with a view to checking the possible psychological reality of certain properties and structures based on the 'purely linguistic' analysis carried out in the preceding chapters. It also includes an attempt to identify some of the factors responsible for the formation of prototypes in the domain of Modern Greek verbs of motion.

An Appendix is included which contains six lists of Modern Greek motion verbs. List I comprises 181 entries which are indicative of the material the description is based on. Besides motion verbs a number of verbs of position are also included, special reference to which is made in Chapters 2 and 4. List II contains five test-frames and the verbs of List I which can occur in each one of them. List III presents a classification of Modern Greek motion verbs along the 'process-event' continuum. Lists IV and V show the relative degree of agentivity of a number of causative and non-causative Modern Greek verbs of motion. List VI contains all the taxonomic sets and natural classes identified within the field under investigation. Lists VII and VIII present a classification of motion verbs based on the 'minor properties' they exhibit.

# 1. THEORETICAL FRAMEWORKS FOR A LEXICAL SEMANTIC ANALYSIS OF MOTION VERBS

## 1.1 A case for linguistic lexical semantics

In an area of scientific investigation where there is little agreement on what the subject matter really is, it is no wonder that there is no agreement on its parts and their content. Semantic theory lends itself readily to such confusion by lying at the crossroads of 'pure' linguistics, psychology and logic.

Logical grammar or Formal Semantics (henceforth FS) understands and therefore describes the semantics of natural language in terms of a theory of entailments. Consequently it sets itself goals such as matching meanings to syntactic categories, describing sentences through their truth-conditions or explaining how the meanings of individual words contribute to the overall meaning of the sentence they belong to. So word meaning is not to be analysed in its own terms but only in terms of this contribution. This is all very well for 'logical' words (such as 'and', 'but', 'or', 'necessarily'). The vast majority of non-logical words is, however, left out, in the sense that FS refuses to break into their semantic content.\* Lexical meaning is relegated to lexicography. This is very simply and explicitly expressed in Thomason (1974:48):

"the problems of semantic theory should be distinguished from those of lexicography... we should not expect a semantic theory to furnish an account of how two expressions belonging to the same syntactic category differ in meaning. 'Walk' and 'run', for instance,... certainly do differ in meaning, and we require a dictionary of English to tell us how. But the making of a dictionary demands considerable knowledge of the world".

Cresswell (1978:4) considers the same example of two different but related words, namely 'walk' and 'run', only to explain that the speaker's knowledge that the two verbs share a +movement component

\*A notable exception is Dowty (1979).

is not to be incorporated in the model-theoretic apparatus because it is "already present in the functions describing 'walk' and 'run'".

In simple terms, there is such a thing as purely linguistic knowledge, which is completely distinct from knowledge of the world and the latter is the concern of lexicographers, not linguists. A related notion is that it is impossible to construct a theory of word meaning in any scientifically respectable form and therefore that there is no place for 'linguistic lexical semantics'.

Let us consider the viability of alternative approaches to this problem, starting with a rephrasing of Thomason's 'sweeping' statement. It can be argued that 'walk' and 'run' differ in meaning and we require linguistic lexical semantics to provide semantic representations for them which should reveal both how they differ from one another (and a number of related items) and how they are interrelated. We expect these semantic representations to be part of the lexicon of a grammatical theory and all the relevant information to serve as input to lexicography. A dictionary of English is the output of lexicography and we expect it to tell us how 'walk' and 'run' differ from one another as 'linguistic expressions', i.e. as English words. We do not expect it to do anything more than that. After all, according to the standard distinction between the dictionary and the lexicon it is the latter that is assumed to be a 'mental lexicon', a reflection of a speaker's lexical competence. Linguists are expected to find out about a speaker's 'mental grammar', i.e. the internalized set of rules which enable someone to understand and speak his/her language. Lexicographers are not.

The relation between a speaker's mental processes and grammatical operations has been a problem of major concern for psycholinguistics since the early sixties. The goal of psychological semantics remains clear, <sup>at least to some people</sup> it is to show "how language and the world are related to one another in the human mind" (Johnson-Laird 1982:7).

In view of the simple fact that language and the world are necessarily related through the human mind and that no grammatical

model can be describing speakers' competence while at the same time being psychologically unreal, the distinction between the goals of linguistic and psychological semantics cannot be very clear-cut.

This could be misinterpreted as implying that there is no place for lexical semantics except as part of psycholinguistic theory. In fact it should be understood as leading to the conclusion that it is necessary to investigate the possibility of integrating some of the insights of the philosophy of language and psycholinguistics within a linguistic lexical semantic theory.

The majority of relatively recent work in lexical semantics is carried out within the framework of 'definitional' systems. Some of the strongest attacks mounted against definitional systems are based on their psychological unreality. It seems desirable at this point to consider a specific example in some detail. This example concerns the psychological reality of analysing causatives and defining them as complex verbs, i.e. breaking them up into a causative element and some other element(s) also present in corresponding non-causatives. Fodor, Garrett, Walker and Parkes (henceforth FGWP) (1980), <sup>for example</sup> report results of tests proving (in their view) that causatives are deep simplex verbs and therefore undefined. The implication is that no psychological reality can be claimed for any definitions, since causatives are by far the 'best' cases for definitional systems.

The method adopted by FGWP for testing the psychological reality of analysing 'kill', for instance, as 'cause to die' can be summed up as follows. The sentences John bit Mary and John killed Mary are compared, of which only the latter sentence is considered as involving a causative verb, and subjects' judgments are sought on whether it is in the former or the latter sentence that 'John' and 'Mary' are more "closely related". The implication is that if the latter sentence does not get a lower score than the former one (i.e. if it is not considered that 'John' and 'Mary' are less closely related as arguments of 'kill' than of 'bite'), the analysis of verbs into components receives a mortal blow.

Rather expectedly no correlation was found to exist between causatives and relative complexity in the specific sense of the experimenters' equation of causativity = complexity = loose link between the verb's arguments. It is doubtful whether relative complexity can be checked through such methods. For it is hard to imagine even the firmest supporter of definitional systems expecting such a one-to-one correspondence between linguistic and psychological phenomena. FGWP's method is reminiscent of experiments carried out in the sixties with a view to discovering whether derivational complexity correlated with processing complexity. The hypothesis tested in those experiments was that the more complex the transformational derivation of a sentence is, the more difficult it would be to produce or comprehend. The results of those investigations proved in essence that no one-to-one correspondence should be expected between mental processes and grammatical operations.

Evidence in favour of the psychological reality of surface structures is reported in FGWP, summing up Levelt's (1970) findings to the effect that subjects' intuitions respect the grouping of words into surface constituents. A possible explanation of subjects' support of 'standard surface order' could be simply that this is precisely the order to which they are most exposed. It can be argued that this is even more so concerning lexical items. Information 'fixed' and consolidated in the form of a single lexical item (e.g. 'kill') is clearly much more immediately accessible in this form than in any corresponding decomposition (e.g. 'cause to die'). If 'kill' were found to involve a looser link between its arguments than 'bite', that would not have been proof of the psychological reality of its analysis as 'cause to die' either. For 'bite' also involves a complex internal make-up. It might have constituted evidence against the psychological reality of lexicalization, i.e. of the salience of lexical items as (fixed) units. It is undoubtedly appropriate to seek psychological evidence for any linguistic hypothesis set up. The appropriateness of method is, however, a serious problem.

Be that as it may, the fact remains that the distinction between 'basic' and 'complex' concepts assumed in most definitional systems

is not well-established. There is no evidence in favour of a hypothesis along the lines: 'cause-to-die' is less complex than 'kill' and 'kill' is more complex than 'die' simply because 'cause' and 'die' are part of the definition of 'kill'. Even if 'die' is further analysed into 'simpler' units, the problem will remain of how these latter units (whether they be primitive or not) are interpreted, i.e. what fixes their extensions. Despite their merits, which seem to me to lie elsewhere (and will be discussed in the following section), definitional systems have not as yet provided an answer to the overall problem of what relates words to the world. We are still badly in need of extensive investigation to throw light on the process of categorization that converts what Labov (1978) calls "the continua of the real world" into the categories of the linguistic system. Unless such conversion processes are better understood no higher level linguistic semantic theory can be expected. The distinction between 'purely linguistic' information and 'knowledge of the world' is much less than a helpful one.

Consider a specific example provided in illustration of this famous distinction by a non-supporter of FS, Mereu (1983). Interestingly enough the same verb 'walk' is at issue, also used as an example by Thomason (1974) and Cresswell (1978) as mentioned at the beginning of this section. This time 'walk' is said to have a lexical meaning approximately equivalent to "moving in a certain way by means of legs" and an encyclopaedic meaning, which involves, among other things, information to the effect that (a) "fish cannot walk". But if 'legs' is somehow included, then reference is implicitly made to those entities which possess this property. It is hard to imagine that the meaning of 'legs' is arrived at separately from the real world objects which have legs. Therefore, knowledge of 'walk' and 'fish' implies knowledge of (a). So the (a) type of information need not appear either in the lexicon or in the dictionary. We are left exactly where we were. At one end of the scale (i.e. no knowledge-of-the-world information at all) 'walk' and 'run' will receive identical semantic representations (as already mentioned in connection with FS). Similarly for 'crawl' and all such change-of-location verbs, for clearly if 'legs' can be shown to link directly with encyclopaedic information, so can 'contact with ground',

presumably, (or whatever else will be needed to differentiate between different types of motion). To be consistent with the 'no knowledge of the world' doctrine it is conceivable that even 'motion' has to disappear from the semantic specification of 'walk'; in short, that only logical connectives and quantifiers can be handled in a scientifically acceptable manner.

One more view has to be considered briefly, which is advocated by a number of people working in models of linguistic comprehension, artificial intelligence and computational linguistics\*. It entails eliminating the distinction between linguistic and encyclopaedic information and replacing the two levels of analysis with a unique one. The underlying assumption is that world-knowledge is the first and most important source of information in decoding the linguistic message. The 'purely linguistic' contribution of the word is restricted to strings of sounds and a set of very simple syntactic rules. Quite clearly there is, in this case, no room for a lexical level of processing. Linguistic lexical semantics is again accused of adopting an essentially 'static' dictionary view.

A final note has to be added concerning the relation of word-meaning to sentence-meaning. The lexicon is sometimes distinguished from the dictionary by saying that the former is sentence-oriented while the latter is word-oriented. The tenet that the semantic status of individual lexical items is determined by the contribution these items make to the meaning of the sentences in which they appear is too well known to require elaboration. On the other hand, the view that the meaning of a sentence is a function of the morphemes it contains and the way in which those morphemes are syntactically combined seems equally plausible. The whole issue of whether sentence-meaning or word-meaning is more basic does not answer any more questions than it raises.

What seems to me a reasonable proposal in relation to word and sentence meaning is combining the logical form of a sentence with lexically analysed words which belong to this sentence. The conditions under which the sentence would be true are to be provided

\*(See discussion in chapter 10 of Johnson-Laird 1983)

by the truth-theory. This can take care of the contribution of 'logical words' and 'semantico-grammatical' structures. It cannot do anything more than that. All other 'non-logical' lexical items have to be analysed separately and differently and this is exactly the domain of linguistic lexical semantics. Such items may be analysed on the basis of the conditions of their application to extra-linguistic entities. Actual linguistic expressions and conditions of appropriateness of application are perhaps the only things to which we have immediate access.

The result of such analyses will not amount to necessary and sufficient conditions. It will be actually argued in the following sections that lexical analysis should not have necessary and sufficient conditions as its goal. It can however, contain a lot more necessary, i.e. important, information than simple entailment relations can allow for.

In any case, whatever is adopted as an appropriate framework for lexical analysis cannot be of the same status as truth conditions provided for sentences. It may for the most part be language specific. Comparison of similarly carried out analyses might one day yield conceptual entities in the form of substantive semantic universals. This I understand to be the end product; not the tool to carry out lexical analysis in the first place.

What seems imperative in order to attempt any lexical semantic analysis which purports to contribute to an understanding of what belongs to linguistic lexical competence is some viable notion of human categorization which can serve as a guide. What is also necessary is some theory of language and the world.

The fact that no such theories are widely accepted and ready to be applied for the purposes of the analysis of a specific part of the vocabulary of a natural language does not imply that they do not exist in a testable form. Lexical analysis cannot be postponed until such theories are completed. Rather, it can be expected to contribute to their completion by considering lexical semantic facts

in detail and providing empirical corroboration and linguistic preciseness as best it can.

## 1.2 Existing theoretical frameworks: a discussion

### 1.2.1 Componential analysis: the 'major' shortcomings

Lexical semantics has always concentrated on two areas of investigation: the internal semantic make-up of words and the semantic relations between them. Componential analysis and field theory have been developed to cover these areas.

Since the early seventies, componential analysis (or lexical decomposition)<sup>1</sup> has been accused of a number of shortcomings which cannot be overlooked. In fact, these attacks were meant to demolish the whole idea of semantic components. The extent to which I believe these criticisms to have succeeded in their aim will emerge from a more or less detailed discussion of each one of them.

#### 1.2.1.1 Nature of features

Abstractness as a characteristic of meaning components was probably inherited from two different sources: traditional philosophy and de Saussure's 'langue', but was attacked more severely than either.

Notice that abstractness is a problem in itself. Few first year undergraduates are happy with the notion of the 'phoneme' until they get to know what you use it for; certifying about something that it is abstract may simply amount to saying what it is not (like saying that the phoneme is neither a sound nor a letter, for instance). Besides that, however, one could claim that the abstract unit s/he has set up is a useful theoretical construct and proceed to show what use s/he can make of it. It seems to me beyond doubt that by setting up semantic components one can account in a rather neat way for a number of lexical semantic facts such as synonymy, antonymy, redundancy, ambiguity, anomaly, contradiction: they have proved

useful. Theoretical constructs are of course attacked on what they cannot rather than on what they can do. This is probably a much more fruitful engagement than discussing the nature of the semantic components proposed by Katz and Fodor (1963) and later redefined by Katz (1972) under the names 'semantic markers' and 'semantic distinguishers'. Yet the criticism of both versions has centred on two points: abstractness and the distinction between markers and distinguishers.

What seems to me, however, to be much more important than either, is whether semantic features can possibly be exhaustive of the meaning of a word even when they are accompanied by arguments attached to the predicates and hierarchically structured. Notice that problems have cropped up even in the best cases of lexical decomposition, e.g. 'kill' and 'cause-to-die'. Although (1) John killed Mary does entail (2) John caused Mary to die, the mere fact that (2) involves two predicates rather than one gives rise to the discrepancy between (1') and (2'):

- (1') \*John killed Mary on Saturday by stabbing her on Friday
- (2') John caused Mary to die on Saturday by stabbing her on Friday.

To ensure the required synchronicity, time indices can be added to the predicates. Yet the fact remains that biconditionality cannot be expected to exist between (1) and (2) (Fodor 1970).

Nevertheless some solutions are available:

- (a) Lexical decomposition need not amount to providing necessary and sufficient conditions for a given word to denote; and therefore features are, in practice, similar to meaning postulates.
- (b) Words are 'translated' into a number of components which are again to be understood as other (simpler) words of the same language. Clearly each language is entitled to have its lexemes

analysed into terms drawn from its own vocabulary (or from a more widely understood but culturally akin one) without pretending that these are, through magic, elevated to the status of a metalanguage proper. Working within the limits of a specific language and the limitations of a specific culture and ignoring aspirations at universality does not imply that one is left with nothing at all as it is often suggested by critics of lexical decomposition. With a sufficient number of such analyses at hand, cross-cultural and inter-language investigations could be attempted to yield, at the least, groupings of typological significance and, at best, theoretical (i.e. metalinguistic) constructs arrived at as a result of the interaction of such analyses and purely theoretical considerations.

- (c) Semantic features can become substantial if they are adequately analysed and explained, irrespective of how exactly they are expressed (whether in English, in Tagalog or in symbols)<sup>2</sup>. A good example of this is the extremely interesting attempt by Miller and Johnson-Laird (1976) to establish cognitively primitive concepts. This is a way of eliminating the shortcomings of 'abstraction' and still being left with a semantic representation. Such approaches are not to be confused (as they sometimes are) with Katz (1972), for instance, where semantic markers were said to represent 'conceptual components of senses' and distinguishers to mark 'purely perceptual distinctions' without explaining satisfactorily the content of either.

Lehrer (1974:176) seems to complain that "in most treatments the features are left unexplained or left for psychologists or philosophers to explain". Yet if the components are to acquire independent substance there are few other alternatives. One attempt at establishing some of these notorious semantic primes instead of indefinitely theorizing about them is Wierzbicka (1972).

Wierzbicka attacks the use of formulae of symbolic logic in lexical semantic representations as not being 'explications', in the sense

that they would require an explanation in their turn. Her own proposal amounts to constructing a paraphrase of a sentence under analysis which she calls "the semantic representation" of that sentence by virtue of its being made up of words taken as primary and combined in accordance with grammatical rules of what she calls a "semantic language". The whole construct draws exclusively from her own introspection and intuition: "the method is introspection, the evidence-facts of intuition" (p.24). Wierzbicka, who attacks the formulae of symbolic logic as being themselves in need of explications, sets herself the goal of establishing primes which will be expressions which are themselves "impossible to satisfactorily explicate" (p.13). They are expressions in natural language from which the meanings of other expressions are built. She proceeds to compile a list of such 'indefinables' which are supposed to be adequate to explicate all utterances. Apparently she assumes that her formulae are not in need of explication simply because they are drawn from natural language. In practice, however, the actual formulae are even more obscure than most of 'technical' metalanguage. Consider her definition of "x is moving" :

"x can be thought of as becoming a part of different parts of that part of the world" (p.97)

which is based on A. Bogusławski's idea that movement is "becoming somewhere". It is not obvious that such definitions correspond to "ideas which everybody can find in himself" (p.15). They may well correspond to ideas that Bogusławski and Wierzbicka 'find in themselves'. The rest of us do need an explication. So, making an appeal to "intuitive obviousness" does not seem to solve the problem. What can be less counter-intuitive than explicating 'salt' through 'salty' and 'ears' through 'hearing', both of which Wierzbicka finds a 'compelling temptation'? Notice that even CAUSE which is almost unanimously regarded as a major categorizing element for verbs is not granted the status of a semantic primitive by Wierzbicka, because "it is related to and paraphrasable in terms of if" (p.17), which is not considered a primitive either, needless to say. In short the problem is not so much whether we need an explication to understand the formulae or not, as that a lot of definitions (a) are arbitrary and

(b) cannot be put to the test. We are thus left without the grounds for a fruitful discussion even. Wierzbicka herself raises the problem of "sensual data" objecting to Locke's considering expressions related to such data indefinable. Yet her own definition of 'light' is based precisely on such an expression: "There is no light here = This place is such that being in this place one cannot see" (p.19). Identifying semantic features with primitives and seeking primitives in such 'philosophic-philological' ways seems an impossible task.

Consider, however, a much better founded attempt attested in the work of Miller and Johnson-Laird (1976), which shows that an analysis in terms of features or conditions can be a useful tool if its elements are properly defined.<sup>3</sup> Miller and Johnson-Laird are not attempting a thorough exploration of 'cognitive and affective language' for the areas they are examining. That could only be the goal of a mammoth project. They have at least tried to develop a set of primitives motivated by the psychology of perception and conception.\* This is clearly a safer way to try and establish semantic units (whether they are called features or conditions) which have some substance than just philosophizing about them. Their specific proposals concerning 'cause' and 'motion' are discussed in some detail elsewhere as they are particularly relevant to the analysis of Modern Greek motion verbs (henceforth MGMVs). Their formalization does borrow from symbolic logic, but it is explicable, adequately explicated in the text itself and informative. A brief comparison between their understanding of causation in terms of 'perceived causes' and Ikegami's (1969) will hopefully show the advantages of their approach over a vague explanation (although I seem to find fault with both analyses of CAUSE).

#### 1.2.1.2 Markedness

Markedness is also inherited from structuralist phonology and usually attacked in connection with binary complementary features. The question is often raised as to which member of an opposition should take the negation operator and by implication be attributed the status of the less 'basic' one.

\*(ibid.:705)

The usual 'linguistic' evidence brought in support of markedness consists in observing, e.g. that How short is x? presupposes that x is short, whereas How tall is x? is a neutral question about x's height, from which it is concluded that 'short' is the marked and 'tall' the unmarked member of the opposition. I believe that there is quite strong linguistic evidence of this type within specific lexical fields and that it is actually one of the merits of the lexical decomposition and lexical field theories to have drawn attention to this phenomenon in connection with semantics. It can be extended to apply to different inter-lexeme relations and shown to play a role in the organization of semantic subfields. This point will be taken up whenever it arises in the course of the present analysis. Examples from Modern Greek (henceforth MG) compounds and semantic similarity tests on MGMVs point to the direction of structures in pairs and at the same time the relative 'priority' of one of the two members. There are a number of different ways to account for this relative priority. Markedness is probably the most general of them and the best established one. So rather than considering it a problem specific to lexical decomposition, it should be understood as a phenomenon of wide application.

#### 1.2.1.3 Atomicity and universality of features

Features are supposed to stand for atomic concepts, i.e. unanalysable units. This is not to be understood as necessarily implying the individual and separate existence of entities; in fact most work of the componential analysis type was actually in keeping with the genuine structuralist spirit of emphasizing the interdependence of entities and this is, in my view, one of the most essential merits of any such practice. At the same time, though, features are also supposed to belong to a universal set from which individual languages select and draw, making different combinations in the process of lexicalization. This alleged universality of sense components has been easily (and for obvious reasons) attacked ever since it appeared. In fact, one method of bringing the whole idea of lexical decomposition into disrepute is through claiming that in these aspirations to universality lay most of the attraction of componential analysis (see Lyons 1981). I have strong doubts about

this claim but very few doubts that universality and atomicity constitute the sorest points in semantic feature theories. This is not to be understood as implying that the search for different types of semantic universals is doomed to failure. Different thematic relations as explored by Fillmore as well as Gruber and Jackendoff might be thought of as a step in establishing semantic universals. Parallel to these, investigations in quite specific areas of the vocabulary such as Berlin and Kay's (1969) well-known study of colour terms, Lehrer's (1974) cooking terminology, Greenberg's (1963) statistical universals are very interesting and quite successful attempts in restricted domains, although, in a way, following the American Anthropological tradition. Universal semantic features might some day grow out of the results of such investigations.

Whether G. Frege is rightly or wrongly 'accused' of being responsible for the 'compositionality principle' I am in no position to judge. What I do know, however, is that the parallelism between decomposing chemical substances and words, if taken literally (as it often seems to be) is unsuccessful.<sup>4</sup>

There are, however, some understandings of atomicity which are compatible with componential analysis and much less objectionable than the notion of universal, inherently unanalysable units.

First of all, as it is extremely difficult, if at all possible, to separate 'primitive' from 'non-primitive' concepts and as there is no agreement yet on the criteria for this distinction, 'unanalysable' could be modified to imply: 'not further analysed for the time being', i.e. at the present state of knowledge. Now, whether this knowledge is to be furthered through a better understanding of the rules governing perception, or a wider and, at the same time, more detailed elaboration of functional properties of objects or, in fact, through the development of an adequate theory of the link between lexical competence and lexical performance will every time depend on the nature of the domain under analysis and the basic philosophical stand of the analyst.

Secondly, if one understands the purpose of the analysis to be bringing out the relations between closely connected lexical items through an investigation of their internal structure, i.e. concentrate on the interdependence of lexical units (in the standard structuralist tradition), the question of analysability in terms of an inherent property of features does not even arise. One posits as components those particular items which are contrastive and help in establishing a neat, elegant, economic and sometimes informative paradigm. Naturally, no notice is taken of the nature of the relation between one's constructs and either the world or the human mind; therefore 'informative' here is to be understood in this restricted sense, i.e. burdened with these limitations.

So, Lounsbury's (1964) features used for the analysis of kinship terms are the semantic dimensions of the particular field he investigates and not further analysed. In that sense they can also be understood as atomic, although Lyons (1981), who equates 'atomic' with 'separate and independent', contrasts the notion of atomicity with structuralist interdependence.

Coseriu's 'primary' vocabulary - to turn to European structuralism - consists of words which "do not imply other words, but correspond to immediate experience" (Coseriu and Geckeler 1981:56). It is not, however, in the least obvious why the fruit of a tree (e.g. 'pomme' offered as an instance of a 'primary' word) is more accessible to immediate experience than the tree itself (i.e. 'pommier' given as an example of a 'secondary' word). Morphological derivations are one thing, immediate experience is another. Structuralism is at its best when it concentrates on functional linguistic oppositions and drops its claims as to the relationship between two different systems, i.e. language and the world.

Yet, it must be admitted that the commonest understanding of 'primary' is probably the one implying (if not directly stating) 'psychologically and logically independent and corresponding to a primary conceptual unit', therefore inherently unanalysable and thus

atomic. This is precisely the kind of atomicity which is completely open to criticism.

### 1.2.2 Componential analysis and semantic field theories viewed as structuralist theories

I have so far concentrated on lexical analyses based on components but have on purpose also referred to semantic field theory as I do not feel that the two should be kept separate. To start with, most analyses of semantic fields are carried out with the aid of categorizing units more often than not in the form of components (i.e. both the American Anthropological practice of analysing kinship terms using components like 'male' and the European structuralist tradition of using elements like 'arms' or 'back' when analysing the sub-field of 'seats').

Secondly, to do justice to both types of analysis, it is important to see how they complement each other. Any kind of componential analysis will make use of recurrent sense components. It therefore provides a tool for defining different conceptual areas on the basis of such components.

Thirdly, it is my view that both approaches have been extremely harshly criticized, often on the same grounds and to a point where their merits have been overlooked.

What has already been said in connection with universalism should not be understood as implying that structuralist linguistic theories cannot contribute to the establishment of universals. For instance, the fact that different languages treat 'space' differently and that this will necessarily give rise to different categorizations as results of the application of semantic field theory does not invalidate the actual analyses. Successful analyses of similar fields in different languages can lead, at the least, to typological categorizations of languages (as already mentioned) and, at best, to a better understanding of how 'space' is conceptualized, provided

issues of substance already discussed are also taken into consideration. Admittedly the most successful analyses, among those conducted within the framework of such methods, are probably the ones dealing with 'functional' areas of the vocabulary (for instance prepositions) and this is to be expected in structuralism, where 'relational' is practically equated with 'essential', i.e. where each item is identified on the basis of its relations with others. There is, however, no reason to suppose that structuralism is in principle prohibitive as to considerations of substance. Besides, it remains to be seen whether its major premise with respect to word meanings, namely that they are not independent of one another, is basically wrong as it is sometimes claimed (e.g. Verschueren 1981:329). It seems that there is quite strong evidence from language acquisition that the meaning of one word is actually learned by simultaneously learning the meaning of other words. Moreover, it is quite evident that semantic components involve dimensions of contrast and it is difficult to believe that these contrasts have no bearing on the issue of conceptualization. This is a major issue which requires careful consideration and will be taken up again in section 1.3 in connection with prototype and stereotype approaches to meaning.

Finally, one of the most severe attacks mounted against lexical decomposition and semantic field theories, namely that they are not exhaustive analyses, has to be seen in the light of what alternative solutions have to offer in this respect both from the theoretical and the practical point of view. So, meaning postulates which are supposed to have fewer theoretical problems, yield at least equally non-exhaustive analyses, while their proper domain is still unclear.

### 1.2.3 The empirical validity of componential analysis

A number of arguments have been put forth against the validity of componential analysis as a practical tool for the study of word meaning. A brief consideration of the arguments in Lyons (1981) is in order here, on the basis of which Lyons concludes that the empirical validity of componential analysis is "more apparent than real" (p.83). Lyons seems to object to analysing 'boy' as 'human';

he actually states that this property is not an essential component of 'boy', since "the male offspring of the gods (e.g. Cupid) are regularly described as boys ... but ... they are not said to be human" (p.84). However, introducing into such a discussion the names for the sons and daughters of Greek gods does little more than touch on the important (philosophical) problem of which characteristics of an entity are 'essential'; this issue is discussed in some detail in 1.3 in connection with Putnam's stereotypes which seem to me to contribute a lot to its resolution. It has no bearing, however, on a discussion of the empirical validity of componential analysis. Greek gods were 'humanized', i.e. conceived of as 'human', sharing with ordinary human beings a number of 'essential' properties; sharing in fact a lot of their 'superficial' characteristics, which (as will become obvious from the discussion of stereotypes) are the most 'essential' in determining the meaning of words. Some of their 'deeper' characteristics, e.g. their immortality, were of course special to them, but they were not enough to 'de-humanize' them in other respects. Hence their male offspring would be called 'boys' for exactly the same reasons that the male offspring of non-gods were called 'boys'.<sup>5</sup> To my mind, such considerations prove rather than disprove that 'boy' implies 'human'. Lyons implies that meaning postulates avoid the problems of componential analysis but he does not demonstrate a satisfactory analysis of 'boy' in meaning postulate terms which could do away with 'human' and 'non-adult' and still be informative.

From a theoretical point of view meaning postulates inherit the problems of semantic entailment in general, the exact nature of which we are still far from having understood. So the question seems to be rather whether it makes sense to look for exhaustive definitions and also whether we should expect the components/features/conditions/entailments we posit to be 'simpler' than the terms we use them to define. The answer to both seems to be negative.

1.2.4 Componential analysis and semantic field theories:  
the 'minor' shortcomings

I have tried so far to argue against the attitude of criticizing componential analysis and semantic field theory too severely, without really substituting anything theoretically clear and indisputable in their place. It is, however, my view that both types of analysis suffer from shortcomings other than the ones I have already discussed and which are considered 'major' shortcomings in the literature. Before turning to these, it seems worth considering some 'minor' questions such as the delimitation of a semantic field, formalization and generality of application in connection with semantic field theory.

The difficulty of delimiting a semantic field seems to have been over-exaggerated as a problem. The question of whether it is in fact possible to determine the boundaries of a given lexical area has been repeatedly put forth. A partial answer to this question is the existence (in fact or in principle) of crossing fields, open-ended fields, fields with sets of items which bear paradigmatic or syntagmatic relations to one another. There is nothing in the theory itself which prevents one from adopting the method best fitted to the relations to which one wants to draw attention. I therefore consider the matter a purely practical one and the flexibility of the theory one of its merits. In the present analysis, an example of a possible solution is provided in connection with a particular field, and this is done with the understanding that one could think of a number of different ways of approaching exactly the same problem within the framework of the same theory. That semantic fields are not necessarily closed and well-defined sets (as European structuralism viewed them) need not be a shortcoming of the theory itself as some semantic field theorists consider (e.g. Lehrer 1974). It is probably to be expected as a reflection of the nature of natural language. In my view, it only becomes a serious handicap if the goal is to adequately formalize the theory so that it could serve as a component of a formal grammar.

As regards the absence of such a formalization it seems rather naive to consider it a mere 'omission' (going along with Lehrer 1974). By leaving the sentence out of its perspective (at least in its so far existing forms) semantic field theory probably cuts itself away from the possibility of having its analyses 'translated' into explicit formulae of the kind required by formal grammar. It seems to me, however, that the issue of formalization has wrongly been given priority (in comparatively recent years) over the logically prior issue of adequacy. Formal grammar cannot scare away fuzziness if it is part of the nature of human language. A number of alternative theories, already hinted at, seem to ignore a lot of intuitively important lexical information for the sake of 'formalizability'. Paradoxical as it may sound, I really believe (and will argue when discussing 'adequacy') that European structuralism has also lost a great deal in descriptive adequacy and informativeness by imposing a rather rigid schema on the data it analysed and sometimes drowning itself in a sea of 'terminological' sub-distinctions.

It can be argued that field theories have always depended on types of lexical material which lent themselves by their very nature to such analyses. Whether all meanings should or could be analysed in the same terms is of course debatable. Yet if a theory is built on the peculiarities of very few domains it may not be general enough in any interesting way. Field theories have produced successful results in the analysis of kinship terms and personal pronouns, for instance; in general, sets of words that contrast paradigmatically and can be shown to divide what is usually called 'conceptual space'. It is probably at its best in those cases where a small number of components is sufficient to contrast a large number of items. It is, however, the case that not all vocabulary is 'simple' in the sense that it can be analysed only in structural terms. It has been pointed out, for instance, that notions such as promising, ordering and the like cannot be translated into lexical decomposition formulae (see Verschueren 1981:324) because such formulae are inherently unable to capture the idiosyncracies of speech act verbs. Similarly Miller and Johnson-Laird (1976) argue that important concepts such as PERSON do not have a coherent lexical field associated with them. This latter criticism is probably easier to handle than the former

one. The domains into which 'conceptual space' is divided up are not given and 'person' might not constitute such a domain. Miller and Johnson-Laird put however, SPACE into the same basket as not mapped onto an "intuitively coherent lexical field" (p.375). But 'space' can be easily understood as a cover-term applicable to very large nets including different subsets (e.g. direction, location, motion) some of which overlap; these are again split into areas lexicalized as spatial locatives (PPs and Advs for instance), motion verbs, etc. Interlocking fields can constitute quite a coherent whole. It is not therefore immediately obvious that 'space' does not constitute an 'intuitively coherent' domain. Besides, it can be no accident that particular sub-areas belonging to the general notion of 'space' have been analysed quite successfully with semantic field and lexical decomposition techniques.

Precisely for these reasons it is interesting to investigate what an alternative approach to word meaning might offer in such an area. The direction in which to look for an alternative can only be dictated by the prospect of gaining in descriptive adequacy and informativeness, as already stated.

#### 1.2.5 Structuralism, descriptive adequacy, and the case of motion verbs

It has been pointed out in recent years that a number of lexical semantic facts are not and cannot be accounted for by any 'checklist' semantic theory (Fillmore 1975, 1978) but might be handled by alternative approaches commonly referred to as 'prototype' ones. The main theoretical assumptions of Prototype and Stereotype theories and their possible application to MGMVs are discussed separately. Some points have to be made here, however, with the specific aim of comparing Prototype theory to componential analysis and semantic field theories (which are the sort of checklist approaches I am discussing).

Most componential analyses seem to ascribe to (or at least aspire to fulfilling) the 'minimal definition principle' (Bendix 1966), which also implies what we could call 'maximal generalization' as another goal of the ideal definition. The result of such a premise is that the definition of a term (a) accounts for all possible instances of this term and (b) contains precisely those conditions/features/components which are necessary and sufficient<sup>6</sup> to distinguish it from every other term in the lexicon. Anything extra would be a case of what we could call 'structuralist redundancy'. It would be interesting, however, to see if the application of this 'double' principle has succeeded in practice. The two extreme alternatives are clear: if it has, we have an excellent method of arriving at extremely neat and economic descriptions; if it has not, we could suspect something being wrong with the principle itself, i.e. not corresponding to the facts of natural language.

There is evidence that, at least for certain types of lexical material, e.g. speech act verbs, lexical decomposition formulae are so incomplete as descriptions that far from being in a position to make explicit the full meaning of the terms they define, they cannot even differentiate between related items. Consider, for instance, Verschueren's (1981) examples for 'argue' and 'state'. His claim is that lexical decomposition formulae would be identical for these verbs (henceforth Vs) which are clearly non-synonymous:

state (x,y,P) = SAY(x,y,Se)^INTEND(x,CAUSE([SAY(x,y,Se)],  
COME ABOUT (KNOW(y,P))))

argue (x,y,P) = SAY(x,y,Se)^INTEND(x,CAUSE([SAY(x,y,Se)],  
COME ABOUT (KNOW(y,P))))

Alternatively all the basic components of all speech act Vs would be conflated into a single formula:

SAV(x,y,(P))=SAY(x,y,Se)^INTEND(x,CAUSE([SAY(x,y,Se)],  
COME ABOUT (ACCEPT(y,SA'))))

(Verschueren 1981:325)

Notice also that other complex Vs, e.g. verbs of cognition, are often analysed with the help of conditions rather than componential formulae, e.g. Lehrer's (1974) 'belief-predicates' or Miller and Johnson-Laird's (1976) Vs of communication (among others). The conditions used look very much like 'felicity/appropriateness' conditions of prototype semantics in form, but they are in fact entailments - either explicitly (Lehrer) or implicitly (my understanding of Miller and Johnson-Laird).

Semantic information which cannot be reduced to 'general' and 'simple' one-word features creates serious problems for checklist theories. The notorious distinction between 'markers' and 'distinguishers' which has convinced very few people as to its theoretical validity could be seen as an attempt to accommodate (in the form of distinguishers) such 'unsimplifiable' material.<sup>7</sup>

In short, when complex material is involved, either the 'minimal definition-maximal generalization' principle is abandoned or descriptive adequacy. For even within domains which give evidence of inherent structuring, information specific to very few items cannot be included in a rigid structure without creating 'structuralist redundancy'. Examples of analyses exhibiting these characteristics will be given in what follows. The main point is that the combination of this principle and the 'neat' formalization goal have probably done more harm than the 'main shortcomings' discussed in this section. This combination has weakened considerably the descriptive power of such analyses.

Contrary to checklist theories which seek to establish safe criteria that would guarantee membership in a category (necessary and sufficient conditions), Prototype theories seek criteria (appropriateness conditions) for identifying the prototypical (ideal/best) instance of a category. This means that the boundaries of a category are not defined; something can be a clear case of this category (prototypical instance) if all the conditions are met; if only some of them are satisfied the term may still be applicable, provided the deviation from the focal point (prototypical case) is

not too great. Hence phenomena of indeterminacy and gradation which are characteristic of natural language can, in principle, be accounted for in terms of degree of membership.<sup>8</sup>

Before engaging in a comparison and an evaluation of the important theoretical assumptions of the two types of approach, I would like to compare in detail actual pieces of analysis of checklist and 'prototype' descriptions respectively. The exact status or nature of the components/conditions plays no role in this particular comparison, so for present purposes the terms 'features-conditions-components-entailments' will be used as equivalent.

The aim of this 'exercise' is to show:

1. that prototypical (specific) and general conditions are intermingled in checklist (and some prototypical) descriptions;
2. that 'linguistic' and 'extra-linguistic' material is equally intermingled;
3. that there are differences not only in kind but also in complexity between the various components appearing in componential formulae (e.g. WITH used in the same formula as ATG which stands for 'always touching ground');
4. that as a result of all these, componential theories cannot fulfil the principles they set themselves to fulfil, even for domains in which they have produced fairly successful (in the sense of illuminating) analyses, such as the domain of motion verbs (henceforth MVs).

The starting point of this comparison is the classic example of an anti-checklist approach, Fillmore's (1978) note on the semantics of 'climb'. The tentative definition provided includes: (a) a clambering component: locomotory action of movable body parts and (b) an ascending component. It is hard to come across a less specific

(or a more general) definition for 'climb', contrary to expectations. A standard lexical decomposition analysis of the term would probably include additional components like 'intentionality' of the action ('agent' or 'action') and a specification of the medium: 'earth/ground/supporting surface'; all of these I would have thought quite prototypical too. Consider the features proposed by actual checklist analyses for 'climb':

Wierzbicka (1972) is a good case because she is a fervent proponent of the 'minimal definition' principle. Although she does not offer an analysis of 'climb' itself, one can rather safely construct one within the framework she uses on the basis of her definitions for a number of related motion verbs such as 'creep', 'crawl' and 'moving up' which she defines as "becoming further from the Earth" (p.104). Her proposal for 'creep' involves movement of an agent's 'belly', while that for 'crawl' includes movement of 'arms' and 'legs'. So, a possible (restructured) analysis of: A is climbing up x would be: "A causes movements of his arms and legs which cause his body to be becoming supported by further parts of x and further from the Earth". I have hinted at the shortcomings of the actual formalization elsewhere. The main point here is to notice that, in practice, such a definition is at least just as 'prototypical' as Fillmore's: in actual fact, it is even more so, as it involves explicit reference to human body parts and the 'intentional' component.

Miller and Johnson-Laird (1976) offer a definition for 'climb' of the form: ACT (x,(UP(TRAVEL))(x,y) where ACT (x) stands for CAUSE(INTEND(x)), i.e. the 'intentional' component and TRAVEL stands roughly for the 'change-of-location' component. Leaving aside the formalization for the moment, observe the inclusion of 'intention' as well as the specification of 'ascending' as another condition for 'climb'. Now Miller and Johnson-Laird do realize that you can 'climb down'; yet their 'general' definition includes UP (which leads once more toward the prototypical understanding of 'climb'). They choose to explain this in terms of 'climb' being "used with a greater variety of directional modifiers" (p.552) as compared to 'rise', for instance, which cannot collocate with 'down'. Their conclusion is that "...there are some verbs whose incorporated directions can be

overruled by explicit expressions to the contrary and other verbs for which any additional specification of direction must be consistent with the incorporated direction" (p.553). This complete absence of explanation for the facts seems to be the cost of limiting the semantic specification to metalinguistic terms.

To fully appreciate the problem, one has to bear in mind that Miller and Johnson-Laird are actually comparing 'climb' to 'rise' and consider that the main difference between them is the condition of 'intentionality'. The actual 'manner' of motion which is present in 'climb' and absent in 'rise' is not linked to the condition of intentionality in their description, it is not discussed at all, presumably because for the definition to be 'general' enough no 'clambering' condition can be included, since a snail can be said to 'climb up a flagpole', to use Fillmore's example.

Alternatively it cannot be mentioned because 'manner' cannot be easily reduced to 'simple' one-word features. It is clear, however, that whether the condition of intentionality is present or absent in 'rise', the verb will still be applicable (and quite literally be used too), provided the condition of 'upward' motion is kept (e.g. "he rose to his feet"). In order to identify the nuclear sense of a term one must have access to removability of conditions and weightings of individual criteria. It is quite possible that even if the nuclear sense is understood as the maximally general one (i.e. corresponds to the checklist ideal), the way to arrive at it is through weighing distance from focal points. The condition(s) which 'survive', in the sense that they prove unremovable, are probably the ones which have to be included in the minimal definition. But if there are only two candidates (say 'clambering' and 'ascending') and they both prove removable, the checklist definition has an unfortunate case: it will either contain nothing, or contain a disjunction or posit two different entries ( $climb_1$  and  $climb_2$ ). None of these seems too good. The empirical validity of prototype semantics seems to lie mainly in its ability to provide a framework within which one tries to establish the norm (prototypical case) for a category, and account for acceptable deviations from it. These are

at least useful tools in explaining, rather than just stating, lexical semantic facts.

Fillmore's attempt at analysing 'climb' is probably not the best example of prototype analysis, but it cannot lead to the impossibilities just discussed.<sup>9</sup> So, if a monkey can 'climb down a flagpole' while a snail can only 'climb up' one, Fillmore can explain the acceptability of the former instance in terms of the presence of the 'clambering' condition despite the absence of the 'ascending' one, and the unacceptability of \*A snail is climbing down the flagpole in terms of the absence of both prototypical conditions - i.e. 'ascending' and 'clambering' - which results in this last instance of 'climb' being too far removed from the focal point (comprising both conditions).

Two things are absent from this sketchy presentation of a 'prototypical' analysis of a term: the importance of obtaining speakers' judgments concerning prototypical properties of items and a discussion of the relative importance of and the relation between conditions. As an illustration of the last point consider the case of 'climb', 'run' and 'walk', on the one hand, versus 'rise' on the other. I have already hinted at the possibility that the actual 'manner' of motion of the former set is closely linked to the condition of 'intentionality', while for 'rise', which is unspecified as to 'manner', the question of intentionality is separate. A third case is exemplified by 'slip' (as in He slipped and fell down) which seems to exhibit a link between 'manner' and 'intentionality' in the opposite direction (absence of the property in the prototypical understanding of the term). There is evidence from tests that speakers associate (such) discrete properties with lexical items, although their actual nature and the extent to which they are aware of them is an open question. So, if prototype/stereotype analyses can be constructed so as to yield a finite list of properties for a lexeme (which is doubtful for the moment), the main point of contrast between the two approaches will be, in practice, the issue of fuzzy boundaries. Otherwise, componential analysis often works with prototypical conditions despite the theoretical adherence to the 'maximal generalization' ideal, i.e. to the requirement that the

definition must be general enough to cover all possible instances of the item.

To fully appreciate the negative role this adherence has played in the construction of definitions, the confusion concerning linguistic and extralinguistic information and the relevance of these problems to the description of motion verbs, a second example will be looked at in some detail, focusing on checklist definitions for 'run' and some related motion verbs.

Miller and Johnson-Laird (1976) give a general formula for 'walk' of the form: ACT (x,S') and CAUSE (S', DO (FEET,S)) and ALLOW (S,TRAVEL(x)). Even if you add (ON(TRAVEL)) (x,LAND) you still have at least 'run' and all its hyponyms plus all the hyponyms of 'walk' satisfying these conditions. So this is a general formula for all 'travel-on-foot Vs', as they call them, although it actually first appears as a tentative definition for 'walk'. Now, Miller and Johnson-Laird claim that the basic distinction within all 'travel-on-foot' Vs is between 'walking' and 'running'. So they consider incorporating a component 'RAPIDLY' in 'run' which, however, they reject on the grounds that sentences such as He walked rapidly and I was forced to run slowly to keep up with him are not semantically anomalous. Hence their final proposal includes an operator ATG (FEET) for 'walk' (ATG=always touching ground); 'run' gets 'not ATG' and all is settled. We can reconstruct a definition for 'run' on the basis they provide and get:

(WITH,(not ATG(ACT))) (x,S,FEET) and CAUSE (S,(ON(TRAVEL)) (x,LAND)).

The final component is considered omissible from the corresponding definition for 'walk' because we can understand 'walk on air': "the conventional restriction to land might be considered part of our general knowledge rather than our linguistic knowledge" (p.552) we are told. What we are not told is that 'feet' is equally a 'conventional restriction' and arguably also part of our 'general knowledge'; and, besides, that a person with artificial limbs or on

crutches is most certainly 'walking'. What is worse, if we are really looking for the most general (and 'unconventional') definition, then TRAVEL is also omissible, since one can 'run' on the spot, without advancing at all, for physical exercise - unless, of course, we would again like to have two entries 'run<sub>1</sub>' and 'run<sub>2</sub>' (where the second, incidentally, and not the first one, will be specified as lacking the TRAVEL component).

Similarly Wierzbicka (1972) criticizes Wotjak (1971) and Baumgärtner (1967) for treating 'walk' and 'run' as identical except for 'speed' noticing that you can walk fast and run slowly. Her argument is "The difference in the relative speed between walking and running is a consequence of the qualitative difference between the two types of movement, and therefore need not be marked at all, provided that the qualitative difference itself is captured" (p.107). But Wotjak has to fight against structuralist redundancy and stick to one-word features (as best he can) at the same time. He is working with semantic criteria - semantische Kriterien (Merkmale) - such as 'animate', 'agent', 'dynamic', etc., and might be trying to avoid collapsing 'laufen' with 'rennen' and both with 'spazieren' and their respective hyponyms. Conditions such as 'intermittent' vs 'continuous' contact or ATG may not constitute contrasts useful throughout the paradigm, while 'velocity' helps with hyponyms and, in his view at least, also with near synonyms ('laufen' gets +/- fast, while 'rennen' gets + fast). What is even worse, unless the motion is specified as continuous, there seems to me to be no way of keeping 'run' separate from 'jump' or 'hop' even.

Far from trying to ridicule serious attempts at satisfying the checklist ideals, I am only attempting to show the consequences of the adherence to these principles in one of the best cases for structuralist analysis: 'manner' specifying motion Vs. If one wants to impose structure (try to establish more complete patterns than there is evidence for), one can do it. It is, however, unlikely that the result will be worth the effort.

If definitions are to be interesting and illuminating they must somehow account for speakers' intuitions. Semantic competence is not discovered by simply saying that He was running slowly and I had to walk fast ... (or the other way round) is not anomalous. One does not need 'bizarre contexts' to realize that velocity is a relative matter. And as for the sentence itself, it only indicates that someone can be walking faster than usual to keep up with someone who is running more slowly than usual. If anything, this particular sentence implies that the 'standard' instances of 'walk' are certainly slower than the standard instances of 'run'. Juxtapose a corresponding sentence without adverbs, e.g. He was running and I had to walk to keep up with him and one sees immediately that it requires considerable computing to understand literally, precisely owing to the difference between 'walk' and 'run' in speed. And we do not really need special sentences to tell us that. Under normal 'everyday' circumstances people run if they want to go (on foot) somewhere fast. Otherwise they walk.

Evidently, all this is extralinguistic information but it may happen to be important information in distinguishing between 'run' and 'walk'. As already mentioned, no property that is necessary to keep these verbs apart is necessarily 'purely' linguistic. It could of course be argued that 'speed' in 'run' is a concomitant factor of the type of motion it describes. But the argument could be reversed. What is there to dictate the order? It could also be the case that 'manner' is a concomitant factor of the intention for fast movement in combination with the capabilities of the human body. Notice also that 'manner' is not as relative to particular individuals as 'speed' is. In that respect it may be considered more 'basic' or simpler. Be that as it may, MG '*trexo*' (run), at least, arguably involves a speed component in its commonest understanding; it is figuratively used for any kind of fast activity: talking fast, driving fast, working fast, and I take this to be 'purely' linguistic evidence. Yet '*trexi (poli) vriyora*' (s/he runs (very) fast) is not redundant nor is the exact translation of Miller and Johnson-Laird's sentence (He was walking fast...) anomalous.

Notice, in this connection, that Miller (1972) also considers including velocity in the components of 'run' and expresses doubts, on the basis of examples such as the existence of 'jog', which equals 'run slowly'. It is quite possible that for an adequate description the taxonomic levels need to be established first and whatever structuring there exists within each one separately discovered. For since 'velocity' is a relative matter, 'jog' is not to be contrasted to 'walk', for instance, but to the other hyponyms of 'run'. Once relatively 'fast' motion is established for 'run', 'jog' is to be understood as implying 'less fast' in connection to the 'high speed' of 'run'.

These facts can be most naturally explained only by reference to the prototypical understanding of 'run' (or, at least of 'tremo' for which I have more reliable evidence). Only that kind of description can contain 'fast movement' (or even the intention for fast movement) as an appropriateness condition and accommodate the fact that 'run slowly' is not anomalous, link it with some prototypical understanding of human motion and with the absence of a specification of 'speed' for 'walk'. Other elements such as 'continuity/duration' are also prototypical conditions for 'walk' and 'run', as 'instantaneous' is for 'jump'. They are probably also necessary for a most general-minimal definition if the verbs in question are to be kept separate; the problem of redundancy does not arise: She was walking continuously does not seem to be suffering from redundancy.

Notice also that non-prototypical treatments of 'jump' include OVER in the definition; Miller and Johnson-Laird explain instances of 'jump under' as particular cases of a general JUMP OVER. They also accept that inanimate objects can 'jump' so that 'intentionality' and 'instrumentality' (included in their definition) could be omitted. So why do these features appear in the general formula in the first place? Because their definition is supposed to correspond to "the sense that children learn first" (p.557). Such information is very important and cannot be overlooked. It might well be the case that the 'unabbreviated' definition is also close to the most prototypical understanding of 'jump'. For certain reasons it corresponds to the most 'natural' and straightforward instances of 'jump'. Similarly

for 'legs' or 'feet' in connection with 'walk' and 'run'. Wierzbicka expresses reservations on the grounds that "one can walk on one's hands" (1972:108). And she is right. Within the system she is applying, 'most general' has nothing to do with 'most natural'. Even the standard paraphrase of 'walk', i.e. 'go-on-foot', is not valid. Alternatively walk on one's hands will be treated as a metaphor, which it is not exactly. Now, if 'legs' (or 'feet') disappears from the definition of 'walk', then 'walk on foot' should not really be redundant (which it is).

For a 'prototypical' treatment of 'walk' these facts would not constitute a problem. Inclusion of legs/feet seems to be an obligatory condition for 'walk'; hence the redundancy of 'walk on foot'. On the other hand, walk on one's hands will be understood as a deviation from the prototype: neither anomalous, nor figurative.

It seems to me that Fillmore's (1975:129) comment: "introspection about appropriate language use in bizarre contexts does not yield highly dependable data for semantic research" becomes more interesting if one considers the sort of data-base used for establishing most general-minimal definitions. For I cannot think of a goal that would force the semanticist to work on the basis of more atypical, unusual and 'bizarre' contexts.

I have so far limited the comparison of what seem to me the most important approaches to lexical semantics to 'practical' issues, in an effort to show that a number of important lexical semantic facts could, in principle, at least, be accounted for within a 'prototypical' framework, especially since prototypical conditions of application need not be stated in elliptic and non-descriptive terms. Limiting the semantic specification of lexemes to metalinguistic terms and 'neat' formulae leads, in a number of domains, to uninformative semi-definitions.

### 1.2.6 Structuralism vs Prototype theory: conceptualization and extralinguistic reality

It has already been pointed out that structuralism and Prototype theory take a different stand on the issue of conceptualization concerning word meanings and human categorization in particular. The cornerstone of structuralist semantic theories is probably the interdependence of word meanings and therefore semantic contrasts are the focus of their attention.

Evidence from language acquisition may reinforce this view, (Lyons 1983:63). Contrary to this, there are arguments for the independence of word meanings favoured by some proponents of Prototype theory (e.g. Verschueren 1981), as already mentioned. As evidence it is claimed that people, when asked to define words, do not feel obliged to refer to related items, but usually concentrate on the focal characteristics of the item in question, i.e. describe the prototype. Accordingly, only genuine structuralist definitions are based on contrasts. Yet any theory should be able to differentiate between words which are not synonymous for the sake of elementary descriptive adequacy. Therefore the possibility that for some words at least and at some level at least the distinctions are contrastive, cannot be ruled out. Besides, to do Prototype theory justice, one must emphasize that words are not understood as isolated entities in the abstract. They are understood as being related to other words and, quite importantly, as related to the world (extralinguistic reality). Schematically one could say that while structuralism is interested in the former (intralinguistic) relation, Prototype theory is interested in bringing out the latter one through the recognition of the cognitive patterns of categorization. The main premise in this respect has already been mentioned: word meanings are to some extent indeterminate; communication is achieved through concentration on the focal points, i.e. the most characteristic (prototypical) instances of a category.

It is very interesting to consider the structuralist stand on the issue of indeterminacy. Its clearest exposition is probably Coseriu and Geckeler (1981:49, citing Coseriu 1966):

"les valeurs linguistiques sont des valeurs conceptuelles qui se définissent par leurs oppositions et par leur fonctionnement, et non pas par des critères 'réels' et par les limites, précises ou imprécises, entre les phénomènes de la réalité".

So, difficulties in the separation of real phenomena are explicitly said not to affect the distinction between the corresponding concepts:

"quite the contrary: such difficulties show that the concepts are clearly separated. Thus, e.g. the fact that in extralinguistic reality there are no clear boundaries between day and night does not mean that the concepts 'day' and 'night' are unclear as concepts. Here, therefore, the precise delimitation of the concepts stands in opposition to an imprecise delimitation of the phenomena conditioned by the nature of extralinguistic data".

(Coseriu and Geckeler 1981:49)

Hence it is claimed that language establishes boundaries in areas which exist as a continuum and the specific example offered is colour adjectives. But Berlin and Kay (1969) and Kay and MacDaniel (1978) have shown that there is a correspondence between the internal structure of reality and the laws determining the colour sensitivity of the eye and that the linguistic choice (the points of lexicalization) corresponds to the focal points of the fuzzy (as to their boundaries) areas of the colour spectrum. Hence the apparent arbitrariness of colour terminology is only apparent. Now if the linguistic choice is not completely arbitrary but its explanation rests with extralinguistic information, then this information cannot be ignored and word meanings cannot have representations which are at odds with the real world phenomena that would explain them.

Consider now Labov (1978:220) on the issue of indeterminacy:

"In the most general sense, linguistic analysis is the study of linguistic categories. The largest part of our effort is devoted to discovering categories, defining them and setting up rules for assigning membership in those categories. The entire activity is dependent on the existence of category boundaries if it is to be meaningful: if there are no effective boundaries between two categories, the assignment of members to one or another is obviously an arbitrary and pointless exercise".

Labov distinguishes between domains in which features operate categorically and others in which only probabilistic or weighted features are operative. His examples include, on the one hand, kinship terms where he expects categorical judgments "since they are ascribed statuses that do not change over time" (ibid.:226) and, on the other, 'achieved statuses' like 'adult' where weighted judgments are required. It seems to me that even within the same domain there are points lexicalized along a single axis (which is probably the most obvious and simple 'breaking up' of a continuum) and points scattered in different directions but related to one another via certain dimensions. Some of these relations may be contrastive almost in the structuralist distinctive features sense. Phenomena of gradation and indeterminacy can be explained on the basis of prototypical/stereotypical approaches. Structuralist methods can, however, also be useful in establishing a basic pattern, without adhering to the view that the value of a word is determined by the structure of the whole field.

In very concrete terms consider the examples of motion verbs previously discussed. If some event is not exactly an instance of 'trexo' (run), i.e. not prototypically a 'trexo' event but almost that, the deviation will not be completely unpredictable, i.e. in any direction. In the vast majority of cases it is quite predictably going to be in the direction of the nearest categories, i.e. in specific directions: either a 'perpatao' (walk) event - but not exactly that - or a 'piðao' (jump) one - but not exactly that. Other possibilities might be 'hop' or 'dance' (and then the actual distance from the prototype might be greater) but certainly not 'sit'. Focal points may be established on the basis of the prototypical

characteristics of a category and at the same time a structured relationship may be detected between related focal points.

So the prototypical descriptions of *'trexo'*, *'perpatao'*, *'piðao'* would probably have to include as main points of contrast the conditions detected but sometimes misused by structuralist methods (e.g. continuity of motion, number of feet on the ground at given moments, etc.). They would predict that for marginal instances subjects hesitate to use *'trexo'* (run) and finally opt for *'piðao'* (jump) or *'perpatao'* (walk) depending on which of these conditions is/are absent, but do not use a fourth completely unrelated element.

An example of what I call the simplest breaking up of a continuum is offered in the domain of MGMVs by *'ksaplonoz'* (lie down) - *'kaθomez'* (sit down) - *'sikonome'* (stand up, rise). Some of the in between stages are also lexicalized: *'verno'* (lean), *'misokaθome'* (half-sit), *'misoksaplonoz'* (half-lie), *'misosikonome'* (half-stand). All these are points on a single axis (points of body touching supporting surface), so no further structuring needs to be evoked; the deviation from the focal points is in a single direction, the pattern is unidimensional.

The above considerations bear on the sort of apparatus one needs for a particular description. A prototypical analysis of Vs like 'buy' and 'sell' might require reference to scenes, scenarios, frames and a number of similar tools used by prototypical semantics, but quite different considerations would be useful for motion verbs. The prototypical scene for *'kaθome'* (sit) might include a chair and for *'ksaplonoz'* (lie) a bed, but the role these elements play in the application of the terms in question may be less crucial than that of a condition such as 'knees bend' proposed by Dahlgren (1978) for the stereotype of 'chair' and equally useful for the stereotype of 'sit'.

It is also rather clear that by their very nature certain features are graded, i.e. they are a matter of more-or-less, while others are not, i.e. they are a matter of yes-no. Consequently it is quite possible that for the description of the semantic facts of a single

lexical item one needs to have recourse to both kinds of criteria (as will be shown to be the case with MGMVs).

Finally just as one does not want a theory to arbitrarily and rigidly impose schemata which do not reflect reality, one similarly does not want a model which allows for anything at risk of becoming superfluous. Prototype theory is discussed in the following section with a view to clarifying which of its tenets are useful for a description of MGMVs. The overall picture, for the moment, seems to be this: structuralist theories risk imposing structure and leaving out phenomena of gradation and indeterminacy; Prototype theory risks not accounting for existing structure by providing open-ended definitions conflating semantic, associative and individualistic information. Naturally, whether these apparently different kinds of information can be kept separate is a matter of debate.

### 1.3 Prototype theory and human categorisation

#### 1.3.1 On Putnam's stereotypes

In the previous section it was mentioned that Prototype theory proposed identifying the prototypical instance of a category and allowing for other instances to be members of that category without exhibiting all the identifying criteria. This theory has been juxtaposed to theories of word meaning which do not allow for a specific item to be a legitimate instance of a category unless a number of necessary and sufficient conditions/criteria are fulfilled. It has not yet been pointed out here that the basis for this radical difference of point of view is, in effect, the controversy between extensionalism and intensionalism.<sup>10</sup>

In the present context only a couple of points need to be discussed at some length, starting with the issue of analyticity. Putnam's (1970, 1975) theory of stereotypes will be juxtaposed to those of Quine and Katz with respect to this problem. The most convenient

shortcut in doing this seems to be a consideration of the age-old examples of the type:

- (a) cats are animals
- (b) bachelors are unmarried.

Roughly speaking, while for Quine neither (a) nor (b) is analytic, for Katz they both are. Putnam would claim that type (a) examples are not analytic on the assumption that the property of 'animalhood' is revisable and that in case it is actually revised (i.e. absent or replaced by 'mechanical object' for instance) the meaning of 'cat' does not change; what does change if it turns out that 'cats' are in fact mechanical objects, for instance, is our beliefs about them. Katz's stand on this point is clearly that in such a case either the meaning of 'cat' changes, or we start using a new name for this kind of 'creature' (Katz 1975:98).

It is fairly easy to demonstrate that Katz is wrong about this latter claim, but his former one presents a much more serious problem. To put it very simply, it seems quite unlikely that the day we discover that 'cats' are actually mechanical objects we will coin a new name for them; once the reference is fixed (and named) the name (term) continues to be attached to the object. Pulman (1983) offers the example of 'whales' which were not renamed after it turned out that they were not 'fish' but 'mammals'. Perhaps this particular example is not convincing enough because the distance between 'fish' and 'mammal' is not as great as the one between 'animal' and 'mechanical object' (consider the common sense difference between higher and lower level features), or because 'whales' are probably among the poorest examples of 'mammals' in the specific prototypical/stereotypical sense already mentioned and discussed in more detail in the present section. Consider, however, the example of 'spaghetti' which was apparently 'discovered' one day (1st of April) to be not an 'industrial product' but a ... 'plant'. It is quite unlikely that the meaning of 'spaghetti' changed for those speakers (April's fools) who were 'informed' about its actual nature, and quite impossible

that they would have started thinking about a new name for it. What must have changed, for a while, was their beliefs about it.

This links in an interesting way to Putnam's distinction between 'superficial' and 'essential' properties and his claim that knowledge of the former rather than the latter is crucial to determining the meaning of an entity for the average speaker.<sup>11</sup> I take this distinction to be an important contribution of Putnam's theorizing to a better understanding of word meaning and therefore worth looking at rather closely. Putnam concentrates on natural kind terms and claims that their superficial properties are central to their meaning. These are juxtaposed to essential properties, inclusion of which would guarantee membership in the extension of a term, but which are not directly linked to an individual speaker's competence.

From a certain point of view this may be understood as saying simply that we have to abandon the search for necessary and sufficient conditions. In fact, Putnam's ideas in this respect are diametrically opposed to those of Katz and Fodor; the latter are commonly understood as claiming that necessary and sufficient conditions for membership in the extension of a term such as those Putnam considers (i.e. 'gold', 'aluminium', 'water') are (implicitly) known by any speaker who uses the terms appropriately: it should be recalled that both semantic markers and distinguishers were supposed to represent exhaustively a speaker's competence for the respective term. Putnam, on the other hand, claims that a speaker's competence which enables him/her to use a term appropriately cannot involve necessary and sufficient conditions for membership in the extension, because these are not known to all, or even any speakers.<sup>12</sup> He actually suggests that the individual speaker's competence includes everything except the extension. A speaker can be said to know the meaning of 'cat' on the single condition that s/he knows the superficial or standard, i.e. 'stereotypical', characteristics of a cat. S/he can be said to use the term appropriately if his/her use "passes muster" and the extension of 'cat' in his/her idiolect is actually the set of cats. The extension is not fixed by what the individual speaker grasps or not, but by the community, including the experts, through a complex co-operative process.

So Putnam criticizes other theories which, in his words, "leave out the contribution of society and the contribution of the real world" (p.164), i.e. understand cognition as a purely individual matter, ignoring its social dimension. Contrary to traditional philosophy, extension is to be determined socially (contribution of society) and in part indexically (contribution of the world). It depends on the actual nature of particular entities, and this actual "hidden" nature is not fully known to the speaker. This does not imply that extension is not a component of meaning; if in using the same term we refer to entities with different extensions we actually mean different things. Nevertheless, this difference in extension is not a reflection of a difference in individual psychological states, i.e. accountable for in terms of linguistic competence.

Putnam's proposal for the semantic representation of a natural kind term involves a list of 'syntactic markers', 'semantic markers', 'stereotypes' (i.e. stereotypical properties) and 'extension'. These constitute a hypothesis about the individual speaker's competence with the notable exception of the 'extension'. This representation he calls the 'normal form description' of a term and the specific example of such a description he offers for 'water' looks like this:

- A. syntactic markers (box)  
mass noun, concrete
- B. semantic markers (box)  
natural kind, liquid
- C. stereotype/'stereotypical properties' (box)  
colourless, transparent, tasteless, thirst quenching...
- D. extension (box)  
H<sub>2</sub>O (give or take impurities).

(Putnam 1975:269)

This reflects quite clearly the distinction between superficial and essential properties. Superficial properties, which are included in the stereotype, are part of the common speaker-hearer's understanding of the term and they can be "wildly inaccurate" or even "scientifically wrong", since in Putnam's terms, a stereotype is a

"conventional (frequently malicious) idea (which may be wildly inaccurate) of what an x looks like or acts like or is ..." (ibid.:249).

Essential properties, which constitute necessary and sufficient conditions for membership in the extension, are known to specialists, or experts, but are said to be all present in the linguistic community considered as a collective body; that collective body divides the 'labour' of knowing and using the parts of the meaning of a term, through a sociolinguistic process Putnam calls "division of linguistic labor" (ibid.:144), without specifying how exactly it operates (leaving the matter to sociolinguists apparently). The whole hypothesis is offered as an explanation of the fact that while only a minority of speakers has special (scientific or other) knowledge concerning certain terms, all or most speakers of a linguistic community understand and use these terms more or less appropriately.

Putnam's contribution can perhaps be fully appreciated if one concentrates on his own examples: 'gold', 'aluminium', 'water'. In such cases the increase of scientific knowledge in relatively recent years has separated expert from non-expert understanding of the terms rather dramatically, without these words having necessarily changed meaning in terms of 'individual linguistic competence'; it is hard to imagine that 'water' changed meaning for the average speaker-hearer once it was discovered that it was actually H<sub>2</sub>O. Improvement of techniques brings society as a whole closer to a safer identification of the essential properties, the "hidden structure"; yet the average speaker-hearer relies, at any given time, on the 'currently operational definition' of a term. Two related questions arise at this point:

1. How to determine the minimum level of competence (so that it covers the currently operational definition of a term) vs information in the extension box.

2. What happens with common terms which do not have a scientifically/technologically verifiable extension.

The common basis of these questions/problems is probably that Putnam does not provide anything like a detailed theory of stereotypes (nor does anyone else yet, as far as I know). His general view is that this 'minimum level of competence' depends on the culture, on the one hand, and the nature of the object, on the other, but that within these vast limits any native speaker intuitively knows what belongs to it. Hence what is central to the meaning of a term is this stereotypical, widely known, sometimes inconsistent and extensionally incorrect, but linguistically obligatory information. So all that can be detected in his relevant texts in this connection is two partial but very important answers:

- (a) The stereotype need not be correct or unchangeable (i.e. unrevisable or analytic): "linguistic obligatoriness is not supposed to be an index of unrevisability or even of truth. So, for instance, we can hold that 'tigers are striped' is part of the meaning of 'tiger' without being trapped in the problems of analyticity" (ibid.:177), i.e. without having to accept that 'tigers are striped' is analytic.
- (b) For many words an extensionally correct truth definition is in no sense a theory of the meaning of the word. Hence, discussing Davidson's theory, Putnam certifies that "'water' is true of  $x$  iff  $x$  is  $H_2O$ " (ibid.:180), although extensionally correct, would tell us nothing about the meaning of 'water' if most speakers did not know that 'water' is  $H_2O$ .

Linguistic explanation is at least disentangled from the philosophical problems of analyticity. If the semantics of a term is to be a representation of the average speaker's knowledge of this term, it makes much more sense to concentrate on the notion of linguistic obligatoriness (i.e. on specifying the 'minimum level of competence').

Now the idealization implicit in the notion of the 'average speaker' is a problem in itself as will be demonstrated in the course of this investigation time and time again. It seems that for different kinds of common terms, their meaning will differ depending not on a 'linguistic community' in the broad unqualified sense in which the term is frequently used, but on what sort of information is available at any given time to a much more restricted subgroup of a given linguistic community. These subgroups might have to be defined on the basis of their educational level, specific professional or scientific knowledge, local characteristics, etc.<sup>13</sup> Although this is mainly a sociolinguistic problem, it is of immediate concern for this kind of semantic theory. This is closely linked to the issue of communication regarding word meaning. It seems highly desirable to be in a position to tell at which points communication breaks down and for which reasons it does. This can be the object of further research in a number of interrelated disciplines. It seems to me, however, that Putnam's theory, incomplete as it is, points to the right direction of where to look for answers. Stereotypical information, which is responsible for communication, depends on the nature of the object for which a term is used. It is therefore predictable that for kinds of terms other than those Putnam analyses, the sociolinguistic division of labour may not exist at all: there may be no experts who can decide in case of doubt, or they may have different opinions. A good case in point is a term like 'democracy' which involves different social theories. It is predictable that notions related to such terms, far from being accountable for in terms of necessary and sufficient conditions, will constitute precisely points at which communication may well break down.

It must be noted, however, that asserting that stereotypical information depends on the nature of the object for which a term is used is only a starting point. It is rather evident that relative salience of external (superficial) characteristics has to be taken seriously into consideration. So, even within the same semantic field, a single speaker's linguistic competence will be differently defined concerning 'beech' and 'elm trees', on the one hand, and 'palm trees', on the other. Nature of the object is probably to be understood much more narrowly than Putnam seems to suggest. In

addition to the nature of the object, Putnam also recognizes that the role an object plays in a particular society will affect the type and amount of stereotypical information. Yet even these parameters are not sufficient. Compare 'elm trees' to 'tigers' for instance. Neither is probably of great importance to Western urban populations; in fact the latter category is remoter than the former one. Yet 'elm-trees' will almost certainly have a 'weaker' stereotype than 'tigers'.<sup>14</sup> One can consider that either the decisive factor is the taxonomic level of categories (e.g. 'animal' may be a comparatively higher level category than 'tree' and on the same level as 'plant', hence 'tiger' may be higher than 'elm-tree') or that relative salience can only be determined in connection with the perceptually nearest trees or animals in such a case. The important thing seems to be the recognition of such things as the relative salience of different properties of an object, which Putnam does not seem to be taking into consideration.

Another problem for the theory is that the stereotype is not restricted as to the type of information it may include, so it can boil down to everything we associate with a word that helps us understand it. Ways of coping with these problems will be discussed in the section on Rosch's prototypes. One thing, however, has to be pointed out here. There are two pitfalls we wish to avoid: one of them is allowing the stereotype to include expert knowledge for every term, i.e. information constituting necessary and sufficient conditions for membership in the extension; the other one is allowing it to include purely individualistic information. It is clear from what has preceded that the first caveat is taken care of (at least in theory). In Putnam's own words:

"A world in which everyone is an expert on every topic is a world in which social laws are almost unimaginably different from what they now are. What is the motivation of taking such a world and such a language as the model for the analysis of human language?"  
(ibid.:187).

It is not equally clear, perhaps, how the second danger will be avoided. The stereotype is said to include information about the

minimum skills required for entry into a linguistic community (what Putnam calls "significant information").

While necessary and sufficient conditions, or knowledge of the 'essential' characteristics may be arrived at (for some terms, at least) without having recourse to the judgments of native speakers (but only to the experts), 'superficial' or stereotypical characteristics require completely different methods. Introspection will not suffice. The importance of eliciting information from native speakers becomes imperative. Putnam's theory does not raise these issues directly. My own interpretation of the Stereotype approach to meaning and its possible practical implications consists of the following main points:

1. Obviously some stereotypical information will necessarily be encyclopaedic or empirical; some of it will be also incorrect; but the position: "whatever is revisable cannot be linguistic but simply encyclopaedic, empirical, scientific", which is stifling for lexical semantics, is refuted.
2. Extremely subjective material (which can be detected in answers to lexical tests) can be shown not to cover common ground and therefore stay at the bottom as 'marginal': either left out of an attempted normal form description or included as optional (notice that Putnam distinguishes between 'obligatory' and 'optional' stereotypical features).

The exact nature of the stereotypical information we will arrive at can only be discussed (in connection with the specific terms we are investigating) after a sufficient amount of material has been accumulated. For the moment we seem to have more knowledge of what the stereotype should not contain and much less on what it should. What we further know on the basis of Putnam's theory is that a distinction is to be drawn not only between stereotypical and 'essential' characteristics but also between these and semantic markers. Notice first, that semantic markers involve information

which is "central" to the term, "part of a widely used and important system of classification" (ibid.:189). A semantic marker is therefore a higher level property (in the taxonomic sense), i.e. a more inclusive one (e.g. 'liquid', 'animal', etc.).

The most important property of semantic markers for the description of terms other than those Putnam has analysed (e.g. motion verbs) is precisely that they function as classifying units. This is reminiscent of the traditional distinction between major and minor features and seems to me valid for the semantics of MGMVs. How exactly major classifying features for MGMVs differ from minor ones will hopefully become evident in the course of the present discussion of these verbs. It should be pointed out here, though, that very little is known about the kind of namability principles which are at work in the domain of verbs in general and that arriving at an overall specification of such principles lies clearly outside the scope of the present investigation. We do, however, know that we are dealing with rather abstract ontological categories such as intentionality and the related notion of agentivity, for instance. In the domain of motion verbs what are usually understood as high-level properties are linked with the following categorizations: (a) states vs processes vs events and (b) agentivity and causativity (in relation to actions). There can be little doubt that such features are 'major classifying' ones in Putnam's sense.

It will become obvious in the course of the discussion of these features that I understand them as syntactico-semantic in nature. Now the distinction between mass and count Ns is allotted to the 'syntactic markers' box by Putnam. It will be shown, however, that although one can draw a parallel between this distinction and the 'event-process' one (Leech 1971, Mourelatos 1978) the issue is much more complicated when it comes to Vs, the whole phenomenon being graded rather than exhibiting a simple dichotomy, much less clear-cut, depending on syntactico-semantic frameworks and some purely semantic factors requiring special analysis. So, to start with, compared to the sharp distinction Putnam draws between syntactic and semantic markers in his normal form descriptions for natural kind terms, it would seem more appropriate to postulate a unified category

of syntactico-semantic markers to accommodate 'major classifying' features. It should be further noticed that no 'extension box' type of information can possibly go into the semantic description of MGMVs at least. This is not due to 'absence of special knowledge', because in the strict sense of the term, one can easily think of such knowledge being possessed by an athletics committee, for instance, concerning the distinction between 'run' and 'walk'. It is just that no such bit of knowledge can amount to necessary and sufficient conditions for isolating any motion verb from any other one in the 'practical' sense already discussed and in the more theoretical one presented in this section concerning the competence of the non-expert speaker.

### 1.3.2 On Rosch's prototypes

#### 1.3.2.1 Stereotypes and prototypes: common ground

Psycholinguistic research usually associated with E. Rosch and C. Mervis has also provided evidence that the meaning of words is inherently fuzzy and indeterminate and that communication succeeds because we usually operate with prototypes. If categories<sup>15</sup> were defined in mental representation by a set of criteria (properties/attributes) constituting necessary and sufficient conditions for membership, we would expect all members to be equally representative of the category. Rosch and her colleagues have shown however that some members are more characteristic of the category than others, i.e. more prototypical. Their hypothesis is that categories are maintained as discrete by being coded in cognition in terms of the prototypes of the most characteristic members of the category. Their experiments have produced evidence in favour of this hypothesis showing that categories are coded in the mind by means of a prototype of a typical category member, i.e. a 'concrete image' of an average category member. (Rosch 1977b:213-4, Mervis and Rosch 1981).

The basis of the common ground covered by Putnam's and Rosch's theories seems to be that categories are not specified by necessary and sufficient conditions for membership and that their boundaries are not well defined. A reasonable combination of the two is that

the stereotype could be understood as a cluster of attributes of the most prototypical member(s) of a category, and that word meaning can only be given through an imperfect and open-ended definition of the prototype.

Putnam is bothered by what he calls "the idealization of supposing that there is such a thing as the set of things of which the term 'tree' is true".<sup>16</sup> Full recognition of the fact that membership in the extension is not necessarily a 'yes-no' question is also given by the prototype approach which actually provides the means, or at least attempts at working out a method for measuring degree of membership through a direct appeal to native speaker-listeners. This way, such facts, instead of being only a piece of philosophical theorizing (in the abstract), can become the object of detailed analysis and linked to the 'average speaker-listener' whose intuitions may be either ignored or merely guessed at by philosophy-of-language practitioners, but not by descriptive linguists who purport to try and account precisely for these very intuitions.

Both approaches (Putnam's and Rosch's) recognize the importance of the role played by the actual nature of objects in the semantics of terms and that different kinds of terms correspond to different kinds of competence. This is in itself quite significant as it may be used to predict that all combinations of features are not equally probable. (Other theories cannot exclude the conjunction of all possible attributes.) Rosch observes that the perceived world does not contain random clusterings of attributes. Some combinations are more expected than others and some are completely impossible. So, for instance, while 'feathers', 'fur' and 'wings' are separate attributes, 'feathers' are more likely to co-occur with 'wings' than 'fur' is. This is an empirical fact perceived in the real world and is only compatible with an extensionalist semantic theory such as the one Putnam outlined.

Putnam does not specify at all what kind of information goes into the stereotype of terms other than natural kind ones (as already pointed out), while Rosch maintains that the information constituting a

prototype consists basically of perceptual and functional properties (e.g. 'legs' and 'sit-on-ability' as attributes of 'chairs' are examples of a perceptual and a functional property respectively). Notice, however, that such properties are only specified in connection with concrete nouns and with respect to a particular level of abstraction which Rosch calls 'basic level' and which will be given special attention in what follows. Little, if anything, is said by either theory regarding the nature of attributes of anything other than concrete nouns.

#### 1.3.2.2 Prototype theory as a theory of categorization

I have so far concentrated only on how Rosch's approach reinforces the idea, through prototypicality tests, that there is no such thing as necessary and sufficient conditions for membership. That subjects could make judgments concerning degree of membership of an item in a category, thus accepting that 'olives', 'pineapples' and 'apples' are not equally typical of the category 'fruit', for instance, was reported by Rosch as early as 1973. The implication is that if the alternative hypotheses were correct (those requiring necessary and sufficient conditions) similar answers would be elicited for all members of an assumed superordinate/inclusive category. This difference in distance is computed within a given system, i.e. presupposes (as already mentioned) a previously established taxonomy; but the relationship between inclusive category and included members is not simply a relationship of inclusion. The category which consists of a prototype or representative instance and other less representative or marginal instances around it is understood as internally structured in this particular way.

Rosch et al. (1976:383) recognize within concrete noun taxonomies one particular level, the 'basic level of abstraction', at which categories carry the most information and are maximally different from one another. Two more levels are recognized, parallel to those established for biological taxonomies, for instance, a most inclusive one (above the basic level) containing superordinate categories (e.g. 'fruit') and a level lower than the basic one containing subordinate

categories (e.g. 'golden delicious' for the basic level category 'apple').

### 1.3.2.3 The basic level of abstraction

The basic level of abstraction is claimed to be the primary level, where 'cuts' are made in the continua of the environment, and constitutes the level "at which the organism can obtain the most information with the least cognitive effort" (Rosch 1977b:213); hence its identification is of extreme importance for theoretical reasons, but also quite necessary even for the practical purpose of establishing hyponymic relations.

Basic level words were first identified by Rosch on the basis of questions like 'What is this?' while showing to subjects an apple, for instance. The response was expectedly 'an apple', i.e. neither the superordinate (fruit) nor the subordinate (a golden delicious). This is explained on the basis of its representing a 'cognitively efficient' level, at which the information value of attribute clusters is maximized (hence it is posited as the most fundamental level of a taxonomy). Mervis and Rosch (1981:92) cite a number of studies in different domains supporting the existence of such a level (e.g. N. Cantor et al., for psychiatric categories and B. Berlin et al. 1973 and C.H. Brown et al.,<sup>1976</sup> with linguistic and cultural evidence). Psychological research, in particular, suggests that objects are recognized as belonging to basic level categories more rapidly than as members of categories at other levels (Rosch et al. 1976) and that they are those likely to be learned first by the child (Berlin et al. 1973).

Let us consider briefly whether the characteristics of 'spontaneous naming' and 'maximization of information'<sup>17</sup> are also applicable to other areas of the vocabulary and in particular to MGMVs.

If one points at somebody walking in the street (in a very ordinary way) and asks 'What is he doing?', duplicating Rosch's question for natural kind categories and artefacts, the response is more likely to

be *'perpatai'* (he is walking) than *'vimatizi'* (he is pacing, stepping) or *'siyanoperpatai'* (he is walking slowly), which are hyponyms of *'perpatao'* (walk) - provided, of course, one is asking about a (very) good instance of the category. This is all very well provided we all agree that *'perpatao'* (walk) is a basic level category. The problem is that it is extremely difficult, if at all possible, to discover a superordinate category which can be safely said to include verbs such as *'perpatao'* and *'trexo'* (run). The only candidate seems to be *'piyeno'* (go). Notice an immediate complication: if the goal is obvious, e.g. someone walking to a nearby kiosk, the answer (as far as I have checked) is: *'piyeni sto periptero'* (he is going to the kiosk) and not *'perpatai (pros to periptero)'* (he is walking (to the kiosk)). In short, a lot depends on what is assumed to be common knowledge. Context, presupposition and predominantly pragmatic reasons are involved in identifying the various levels of abstraction on the basis of 'Question and Answer' tasks. This has been most convincingly shown by Cruse (1977) for nouns. Elaborating on the extra complications for Vs seems unnecessary here. The particular problems of verbs will be discussed at many different points in the course of this investigation.

Besides 'spontaneous naming' the basic level is also ascribed the characteristic of maximization of information. Evidence for this claim is provided by the experiments mentioned in Rosch et al. (1976) where subjects were asked to list attributes for categories distributed over all three taxonomic levels. Counting the number of attributes common to categories at the three levels the experimenters found that basic level categories had many more shared attributes than superordinate ones (e.g. for 'fruit', superordinate: 3 shared attributes; basic: 8.3 shared attributes). So the basic level appears as more informative than the superordinate one. Subordinate categories were found to have more shared attributes than basic level ones, but the majority were shared with the basic level category including them and were therefore common to most subordinates. This implies less discriminability. So the subordinate level also appears as less informative than the basic one.

These results are extremely interesting in themselves, although the possibility of obtaining further results for other kinds of categories in order to check the generality of the principle depends crucially on being first able to obtain listings of attributes directly from subjects. The difficulty of the task will be discussed in the next section.

#### 1.3.2.4 Category formation

There can be little doubt that the world consists of an infinite number of different stimuli; and that one of the most basic functions of all organisms is classifying, i.e. dividing up the world in order to cope with this infinite diversity. It has also become evident in recent years, at least, that this segmentation is not completely arbitrary. It has already been mentioned in connection with 'colour', for instance, that categories form around perceptually salient points in a domain; one can legitimately, I think, consider such points as 'cognitive prototypes' of the domain. Yet the principles underlying categorization are still at an early stage of research.

Rosch formulates a hypothesis on the formation of categories based on a combination of the two principles already hinted at in the previous sections: the principle of 'perceived world structure' (1978:29), confirming that attributes co-occur in specific bundles, and the principle of 'cognitive economy' (1978:28), which ensures that categories are formed so as to maximize discriminability (and therefore information).

The important issue of how the internal structure of categories arises amounts, within the framework of this theory, to establishing the principles responsible for the formation of category prototypes and gradients of category membership, and has to be presented in some detail. For categories with a physiological basis (e.g. colours) prototypes may be stimuli which are salient prior to formation of the category and the very salience of which determines the categorial structure of such domains. For most other domains prototypes are understood as being formed through principles of learning and

information processing from the items given in the category (Rosch and Mervis 1975:574). One of the major structural principles which are said to govern the formation of the prototype structure of semantic categories is that of 'family resemblance', borrowed from Wittgenstein (1953). It suggests that it suffices for each referent of a word to have at least one property in common with one or more other referents, while at the same time it is possible for few properties or no property at all to be common to all of them.

Rosch and Mervis (1975) build on this notion their hypothesis that members of a category are understood as prototypical to the extent that they bear a family resemblance to other members of the category - i.e. the higher the degree of family resemblance, the greater the number of properties shared with other members of the same category. Conversely, items viewed as most prototypical of a particular category are those with least family resemblance to (or membership in) other categories. There is a strong correlation between the score an item gets on the basis of prototypicality judgments and the one it gets on the basis of its family resemblance (number of shared attributes). In practical terms this means that a prototypical member of the category 'fruit' (e.g. 'apple') shares most attributes with other members of the same category (e.g. 'orange', 'peach') and fewest with members of categories other than 'fruit' but on the same level of abstraction with it (superordinate level), e.g. 'furniture', 'musical instrument'. In this sense prototypical members of categories have the properties of maximal informativeness and maximal discriminability. The principle of maximization of information and discriminability is considered responsible both for the salience of the basic level of abstraction and for the salience of prototypes.

It is obviously of central importance to the present analysis to be able to test the validity of these principles for verbs. The major obstacle is the one stated for the basic level of abstraction: the difficulty of obtaining lists of attributes (compiled by subjects) comparable to the ones Rosch and her colleagues have been able to obtain for concrete nouns. Far from being characterizable in terms of 'perceptual and functional properties' such as those presented for the concrete nouns tested, most verbs involve far more complex

characteristics. The problem is discussed in detail in Pulman (1983). Pulman reports the results of experiments he conducted roughly duplicating the ones reported by Rosch but replacing noun categories with verb ones. Subjects were asked to write down as many attributes as they could think of (within 90 sec. per item) as being characteristic of the specific verbs they were presented with (or rather of instances of the events or actions these verbs stood for). The responses ranged from synonyms and definitions to connotations, the category name itself and some attributes of the kind Rosch had obtained for nouns (e.g. 'hug' = 'using both arms'). What is much more serious, if the attributes obtained were to be edited in the way suggested by Rosch, over 50% of the original ones (for each item) would have to be discounted as clearly inappropriate. In view of all this, it can be no surprise that family resemblance was not found to be positively correlated with prototypicality (which was precisely the hypothesis put to the test). Pulman's conclusion is that family resemblance cannot be therefore said to constitute a causal factor in the formation of prototypes (Pulman 1983:119-20).

Two things have to be noticed here. Firstly, obtaining prototypicality judgments for the same sets of verbs and their respective subordinates was no problem for Pulman. Such judgments were also easy to obtain from Greek subjects operating with MGMVs. The actual details of these tests will be discussed in the relevant chapter. It seems, however, in order to outline right at the outset what the theoretical possibilities are (given the present state of the art). The question is not so much whether the prototypicality effect holds for verbs, but rather which principle(s) is(are) actually at work there. This leads us to the second point. Leaving subjects aside, for a moment, and the sort of information we normally associate with verbs, consider some complications which arise before we start looking for attributes. Take the classical example of 'kill' which is probably a clear case of a basic level term and relatively easy to find subordinates for. A possible set of subordinates would include 'murder', 'execute', 'assassinate', etc. An equally plausible set would consist of 'stab', 'run over' (with a car), 'strangle', etc. The members of the former set are differentiated in terms of 'purpose' or 'motive', those of the latter

one in terms of 'manner'. This gives rise to a number of complications which run counter to the very idea of testing the principle of 'family resemblance': firstly there are problems of category inclusion which are not comparable to those of nouns. A stabbing or a strangling event might be reasonably considered an instance of 'murdering'. This does not, however, necessarily imply that 'murder' is to be considered a superordinate of 'stab' or 'strangle' and therefore higher than or at the same level as 'kill'. For while 'murder' necessarily implies 'kill' (and is therefore included in the category 'kill'), 'stab' and 'run over' may not result in a murdering or killing event at all, contrary to 'strangle'. Such problems of class-inclusion are not likely to turn up with the kinds of nouns Rosch and her colleagues studied.

Consider now the situation with respect to specific attributes for these terms and the formation of prototypes. The members of the first set of hypothesized hyponyms of 'kill' share the property of 'intentionality' unlike the category name itself which is unmarked for this feature. In addition to this, they all share what they inherit from the category name, i.e. 'cause-to-die' or something to that effect. They are differentiated in terms of different motives, the evaluation of which cannot be expected to be unanimous: 'executing' may be a lawful action but for some speakers at least it may well carry the connotations associated with 'murdering'. The second set of hypothesized hyponyms contains only one term which is properly included in the higher class, namely 'strangle' and a number of others which are not properly included, i.e. 'run over', 'stab', 'shoot', etc. One term will stand out as unspecified for 'intentionality', namely 'run over'. They are differentiated in terms of different 'means' through which the respective actions are carried out, e.g. 'with a car' for 'run over', 'with a gun' for 'shoot', 'with a knife' for 'stab', 'through pressure exercised by hands, etc.' for 'strangle'. By the sheer fact that 'run over' is singled out for not being specified for 'intentionality' it will probably receive a lower family resemblance score than 'stab' for instance. The only category properly included in the higher one (irrespective of whether 'kill' or 'murder' is considered the immediately higher category in this case), namely 'strangle', will

probably receive a lower family resemblance score than the rest, for the very reason which renders it the most 'legitimate' subordinate of 'kill' or 'murder', namely that it normally involves 'cause-to-die' (i.e. necessarily implies 'killing').

At this preliminary stage  
^ these observations only touch on the problems involved and are simply meant to show the messiness of the data of attributes for verbs and the futility of counting attributes and establishing family resemblance as a plausible explanation of category formation for such categories.\* If 'frequency' and cultural 'salience', (mentioned in Rosch and Mervis 1975:599 as factors also contributing to category formation and in particular to the formation of prototypes) are also considered very briefly in connection with the above data, the result is not much better for the family resemblance principle. The assumption is that the most familiar objects are named first and are basic level (e.g. cats, chairs). Superordinates are then formed around such basic level terms which are already established and which become the prototypes of the superordinate (e.g. of 'animal' and 'furniture' respectively). It seems intuitively correct that compared to 'stab', 'run over' is more familiar and somehow more culturally salient and more frequent (in terms of 'frequency of contact'), yet their respective family resemblance scores are not very likely to account for this intuition.

Familiarity and relative salience, although in bad need of an accurate explanation or at least of some elaboration, look like more promising factors in the case of abstract categories such as those of verbs. They will therefore be looked at in considerable detail in the chapter discussing prototypicality tests for MGMVs.

It has to be pointed out once again that there is no reason to expect semantic competence for verbs to be similar to that for nouns. Moreover, it is plausible to expect different attributes in different verb domains. In general what subjects seem to grasp as verb attributes can be shown to be more 'vague' and 'inaccurate' (in Putnam's sense) than the 'perceptual' and 'functional' properties of the nouns Rosch and her colleagues investigated, even within domains

\*(For detailed discussion see chapters 4 and 5).

involving relatively 'concrete' material such as that of motion verbs. None of these considerations invalidates Rosch's hypothesis for category formation in the specific areas she has examined. The observations made in this section do not bear on the issue of whether certain events are more prototypical of an inclusive event or not. They simply raise questions concerning class inclusion, the validity of the 'family resemblance' principle and the feasibility of the task of arriving at comparable (and therefore also countable) attributes by direct appeal to native speakers in the case of verbs (or rather in domains other than the ones Rosch has been concerned with).

What seems to be completely indispensable in Rosch's theory is that categories are internally structured by gradients of representativeness and category boundaries are not definite. The principles of category formation for different types of categories can probably be best explored after considerably more experimental work has been done in different areas, checking first whether the prototype effect is of as wide applicability as it is expected to be (on the basis of theoretical and experimental work done so far). Most of Rosch's more recent work concentrates on 'degree of membership' rather than the nature of the prototype as a mental construct. So definite answers on the principles governing its formation are rather premature. Yet even as a piece of exploratory work, if not a complete theory of categorization, Rosch's investigation raises a number of stimulating questions and suggests some possible answers. Besides, as it depends heavily on speakers' judgments, it attracts attention to the tremendous significance of tests even for descriptive linguistic purposes.

It is possible that tests different from the ones Rosch has used are more appropriate for other domains (such as the semantic similarity tests discussed here in the relevant chapter). Although explanation of experimental results may be 'a poor substitute' for understanding human mentality (Johnson-Laird and Wason 1977:2), it seems quite indispensable for a semantic description which wishes to take into consideration 'other people and the world'.

#### 1.4 Delimitation of the field of motion verbs

It is well known that a list containing all and only verbs of motion is "an impossible ideal" (Miller and Johnson-Laird 1976:530). It is not in effect obvious that such an 'ideal' should be posited in the first place, given the nature of language and the fuzziness of the boundaries of semantic fields, which was recognized long before Prototype theory: Schweidenweiler (1942), among others, already notices that the boundaries of semantic fields are not clear.

It seems plausible to accept that the clearest case of a motion V is one which describes the change of location of an object. This means that what is common to all the Vs we wish without hesitation to call motion Vs is that they describe (among other things) the fact that: a certain object A which at a given time  $t$  was at some point  $x$  is at point  $y$  at a later time  $t'$ . So, Marietta came home implies that the subject was away from home at time  $t-1$  and that she was at home at some later time  $t$ .

In addition to the class of Vs describing a change-of-location of an object, verbs involving a change-of-position not of the object as a whole but of parts of it may be also understood as MVs. This category might include Vs describing change of shape, orientation/rotation or oscillation. So, in Marietta bent down, the motion described by the V does not involve a change-of-location of 'Marietta'. The change in the subject's state described here is a change in shape resulting from her going from the standing position, for instance, to the one referred to by 'bend'. Motion but no change-of-location of the whole object is involved.

Some linguists, such as Ikegami (1969) and Miller (1972), use the term 'V of motion' to refer only to Vs which describe a change-of-location (of the whole object). Others, like Nida (1975), consider as motion Vs also those referring to categories such as the ones just discussed above (without recognizing them as different categories either). Nida refers to such Vs in English as involving motion of 'major parts of the body', which he contrasts with Vs describing

motion of 'minor parts of the body', such as 'wink', 'smile', etc. In his analysis it is hard to see: (a) how one would distinguish 'major' from 'minor' parts (consider for instance the case of 'wave') and (b) how he excludes Vs describing activities of various sorts such as 'write', 'cut', 'pierce', etc., since all activities involve motion of some part of the object performing them. No distinctive criteria are offered. Besides, no explanation is given for excluding so-called 'contact Vs' such as: 'touch', 'hit', 'kick', etc.

In mechanics the motion of a body is analysed in terms of a 'translation' (change-of-location) of its centre of gravity, on the one hand, and a rotation or change of shape or oscillation, on the other. The latter type is relevant as regards the motion of parts of the body relative to the centre of gravity or the position of equilibrium (considered as a point of reference). This distinction between change-of-location and all other kinds of motion may be said to be reflected in language at least to the extent that radically different frames are compatible with motion verbs which fall into a 'change-of-location' category and those which do not.

Two major categories are therefore recognized: the first category contains verbs describing the transfer of an object from one place to another. All the Vs that belong here are change-of-location (henceforth CL) verbs and they give rise to a contradiction if inserted in a frame like:

(A) A \_\_\_\_\_ -ed (B), but (B) did not change location/place.

Examples of such verbs are 'go', 'travel', 'enter', 'wander', 'bring', 'send', etc.

The second category comprises verbs already referred to as describing kinds of motion involving parts of the object changing location but not the object as a whole. These verbs are change-of-position (henceforth CP) verbs and give rise to a contradiction if inserted in a frame like:

(B) A \_\_\_\_\_ -ed (B), but (B) did not move.

Examples of such verbs are 'tremble', 'turn', 'lean', 'sit down', etc.

It is obvious that a great number of Vs describing activities of various sorts will display the same behaviour concerning frame (B) as the verbs just discussed, e.g.:

(3) \*the man wrote/was writing, but he was not moving.

The same holds for 'pierce', 'cut', 'break' and a lot more. What is basically described here is the result that the motion of the subject has (also on the object, if there is one), rather than the actual motion as such. The action of 'writing', for instance, can be performed by hand, by mouth or by foot even (in the case of handicapped people), and by machine; the point is, however, that mimicking the movements that remind one of writing without anything resulting from it, will not be referred to as 'writing'. So none of the Vs describing activities of various sorts but not motion as such need be considered motion Vs. The same could be said to apply to what Miller (1972) calls 'contact' Vs. The category would comprise Vs such as: 'hit', 'beat', 'push', 'slap', 'touch'.

The issue of what constitutes a verb of motion and what does not seems to present problems even to those linguists who equate motion with change-of-location of the whole object. Thus Ikegami (1969) considers a verb as a verb of motion if the feature of motion is the principal and not a subordinate element of its meaning. He also allows for the possibility that a verb may cease to be a motion verb "when we can no longer assign the feature of movement to it" (p.87), and mentions 'escape', 'visit' and 'elope' as examples of verbs where features other than motion ones have become so prominent as to overshadow the movement feature. 'Assemble' is quoted as an example of a V which "ceases" to be a motion verb in We are assembled vs We have assembled (where, he would claim, the motional uses are felt to be original and the non-motional ones derivative). Besides, Ikegami

holds that the reverse process is also possible, in the sense that the feature of movement may start off as a subordinate element (or even non-existent) and become prominent. On that basis he analyses 'throw' in:

(4) He threw the ball skillfully

as "make a certain movement of the arm" + "cause something to go through the air" (p.89) while in (5),

(5) He threw the ball over the fence

he analyses it as "cause something to go through the air" + "by making a certain movement of the arm" (ibid.).

First of all, it is quite unclear how Ikegami decides when a feature is prominent or primary and when it is subordinate. Besides, it is not clear that two different analyses have to be proposed, unless a system of description is presented which provides the principles on the basis of which such distinctions are valid. It is plausible to assume that different contexts will involve different (to some extent) understandings of a verb. Once the stereotypical properties of a verb have been established, the relative salience of such properties may be discussed in connection with specific instances of the event, action, etc., described. In the absence of such logically prior steps, decisions on the appearance and disappearance of features seem unwarranted and probably premature. For the moment we are concentrating, best as we can, on whether the feature of motion can be said to belong to the meaning of certain Vs in an intuitive rather than a theoretically well-established sense. This means that if a verb can be seen as describing how an object changes from a place  $p$  at time  $t$  to another place  $p'$  at a later time  $t'$  it is a very good candidate for the semantic field under consideration. At this stage nothing more can be said about 'throw' except that in most of its uses as well as in its most characteristic instances it seems to involve this feature. The 'most general' and the 'most prototypical' understanding seem to coincide as regards the central property of

this field (i.e. 'motion') for the vast majority of the verbs included here. Hence 'throw' does not seem to constitute a borderline case.

The situation is more complicated in the case of verbs such as 'push' and 'pull'. A sentence like:

(6) He pushed the cart up the hill

is analysed by Ikegami as involving "'go' + 'at the same time as pushing'" (1969:89, 161) and on that basis 'push' is regarded as a V of motion. I assume that in a different context, as for instance:

(7) He was pushing the wall in vain

the V would be regarded as not being a motion verb. It can be argued, however, that the implication of motion in (6) is the result of knowledge to the effect that if an impulse is exercised on something movable, provided certain factors are favourable (e.g. the impulse is sufficiently strong and there is no obstacle), the recipient of the impulse moves. A further implication is that one pushes something if one's intention is to make it move away. In terms of the most general understanding of 'push' it cannot be considered a motion verb as such. Its prototypical image may, however, be closer to the situation presented in (6) than the one presented in (7). This is one of the many instances which show that even within fairly well-defined subfields, such as 'change-of-location verbs' the borders are expectedly fuzzy.

Miller and Johnson-Laird (1976), who also restrict the domain of motion verbs to those of change-of-location, consider verbs such as 'breathe', 'shrug', 'cough', 'smile', 'sneeze', etc., as borderline cases, since no change-of-location is exactly involved. They apply a test of the form He shrugged, but he changed location and He shrugged, but he didn't change location (p.529). Since both Ss are acceptable, the 'but' test excludes the set of verbs in question from

the field. They note, however, that He shrugged his shoulders, but they didn't change location is odd, which goes to show that motion is involved somewhere. Their conclusion is that if the above set is to be included, then one should also include verbs such as 'oscillate', 'rotate', 'spin', 'turn', and similar verbs describing rotary changes. Besides, they consider that verbs such as 'absorb', 'extend', 'fill', 'grow', 'widen' and others implying 'change in shape or size' would also have to be included (if 'breathe', 'shrug', etc., are not excluded) as involving "movement of boundaries" (ibid.).

Since all such decisions are in effect subjective and arbitrary, nothing is illegitimate. It seems, however, important to identify, even at such a preliminary stage, verbs which are felt to belong together, i.e. which form a natural class, on intuitive grounds. Evidently 'shrug' constitutes a special problem, because causative 'shrug' (e.g. 'he shrugged his shoulders') does involve change-of-location of the object, while intransitive 'shrug' does not involve transfer of the subject as a whole. In this sense it is slightly misleading to base decisions on the status of the natural class of, say, 'minor bodily-movement specifying verbs' on this idiosyncratic feature of a single member of the set. (Notice that this situation does not arise with any of the remaining verbs Miller and Johnson-Laird include in the set in question.)

A second remark has to be made concerning verbs of 'rotary motion' ('rotate', 'turn', etc.). It seems that a decision as to whether they are to be included or not is independent of that for the previous group. They constitute a fairly easily identifiable class: they seem to involve some change of orientation of the whole object (as intransitives) probably with a fixed point. If the field is restricted to change-of-location verbs, they are a borderline case. If the field involves motion verbs in general, they are indisputable candidates.

The third set of verbs mentioned in Miller and Johnson-Laird includes 'absorb', 'extend', 'fill' and the like and is said to involve

'movement of boundaries'. Notice that Ikegami (1969) considers verbs such as these ('expand', 'stretch', 'swell') as involving part of the object moving while the rest remains in the same place. In this understanding he lumps them together with 'stand up', 'fall' and 'shake'. One might object to the inclusion of individual items in either categorization but, as already stated, the most important thing at this stage seems to be identifying whole groups rather than individual items. It seems more plausible to consider 'change of shape/size' verbs as a class apart and a borderline case of motion verbs. Others such as 'stand up' and 'shake', which do not involve change-of-location of the whole object, are certainly within the field of motion verbs.

'Contact' verbs, already mentioned in connection with verbs describing various activities, are an even more problematic case as they necessarily imply motion (and usually change-of-location even) of at least one of the objects involved. Owing to this implication such verbs are included at this stage: they are felt to be nearer to the 'centre' of the field than 'movement of boundaries' verbs or the class comprising 'smile', 'cough', 'breathe', etc. Yet the majority of the verbs that belong to this group exhibit quite idiosyncratic characteristics, which do not seem to relate to other properties which play a central role in establishing inter-group relationships. Hence no use will be made of such verbs.

The criteria discussed above can be employed to categorize MG verbs of motion into CL and CP verbs. The majority of CL verbs imply covering a certain distance. Therefore in order to confirm the correctness of a CL categorization, one can consider as a suitable syntactic test the compatibility of a particular verb with a phrase describing that distance. One possible test-environment involving a measure phrase which is suggested in Miller (1972) takes the form:

A \_\_\_\_\_ PAST (B) (ja) 10 *pontus/metra/xiljometra*

A \_\_\_\_\_ -ed (B) (for) 10 centimetres/metres/kilometres.

Examples of MG CL verbs which pass the above test are 'trexo' (run), 'kilao' (roll), 'sikono' (raise), etc. There are, however, verbs which are intuitively felt to describe CL although they cannot occur in such an environment. Further syntactic tests are therefore necessary to secure their inclusion. Four appropriate environments are proposed, concentrating on the points where the motion starts (source) and/or ends (goal). List II contains all five test-environments (a) to (e) and the verbs which can occur in each one of them. There is a natural hierarchy in these tests, in that most verbs which are compatible with a certain environment are also compatible with any subsequent one. The last environment included in List II, namely (e), allows also for the inclusion of CP verbs. Examples of this last category are: 'talandevome' (oscillate), 'skivo' (bend), 'kaθome' (sit), etc.<sup>18</sup>

In the present study only physical motion of concrete objects and a literal understanding of MVs are taken into consideration. Discussing the boundaries of 'literal' understanding lies outside the scope of the present analysis, although the problem is in fact very acute in connection with MVs. Cases like (9) or (10):

(9)        *o δromos oδivi sto xorjo*  
            the road leads to the village

(10)       *o kisos skarfalose mexri to paraθiro*  
            the ivy (has) climbed up to the window

involve concrete objects and (10) describes also physical motion (related to growing). Yet the verbs 'oδivo' (lead) and 'skarafalono' (climb) are not indisputably 'literally understood' in such contexts. Such cases will be mentioned separately when the analysis depends crucially on whether a particular use is literal or not; the whole issue will be discussed in Chapter 3.

## Notes on Chapter 1

1. The terms 'componential analysis' and 'lexical decomposition' are used interchangeably in this thesis.
2. Some linguists have also used a mixture of two different languages in their representations. So, Talmy (1972) uses the Spanish preposition POR in combination with English words to represent what he calls "the deep morpheme" corresponding to "through".
3. Miller and Johnson-Laird (1976) use logical formulae in their representations with abstract operators introduced by 'if' clauses (they discuss, however, the relation of these operators to particular senses of the corresponding English words). From this point of view their semantic elements are a cross between traditional features and conditions (unspecified as to their nature). I feel, therefore, free to refer to them using either term.
4. I am referring to Frege's well known and frequently quoted passage on 'logically simple' elements:

"One cannot require that everything shall be decomposed any more than one can require that a chemist shall decompose every substance. What is simple cannot be decomposed and what is logically simple cannot have a proper definition. Now something logically simple is no more given us at the outset than most of the chemical elements are; it is reached only by means of scientific work".

(Geach and Black 1966:43).

5. It is quite possible that if these gods were conceived of as having the 'superficial' characteristics of cows for instance, their offspring would not be called 'boys'/'girls'. Notice that the Minotaur, which lacked a number of the 'superficial' characteristics of human beings, is never called 'boy' (as far as

I know), although he shared with humans the property of being mortal despite being the offspring of a god.

6. Whether word meanings should be equated with necessary and sufficient conditions is of course an extremely important issue which deserves (and will be given) special consideration in subsequent sections.
7. I must admit that I am one of those few people who believe there is some value in this distinction, although I agree that the attempts at defining the nature of either markers or distinguishers have never been satisfactory.
8. In structuralist theories, gradation is usually restricted to specific types of vocabulary, e.g. the 'hot-warm-cold' kind of paradigm.
9. Lacking a native speaker's intuitions on the semantics of 'climb' I will consider the data of these analyses correct and reserve stronger claims for my MGMVs, for which I also have supporting evidence from the semantic similarity and prototypicality tests I have carried out.
10. Extensionalist theories of meaning (e.g. Putnam 1970, 1975 Kripke 1972) are often juxtaposed to 'mentalistic' ones (Dahlgren 1978:58). This term will not be used here as it might create confusion regarding the ultimate goal of lexical linguistic investigation which is undoubtedly that of characterizing the 'mental' lexicon. I can see no discrepancy between 'mentalistic' and 'non-mentalistic' theories of meaning concerning this goal, i.e. arriving at a description of semantic competence: of whatever is in the mind of an individual which enables him/her to use a particular word appropriately.
11. I am deliberately restricting this short discussion of the theory of stereotypes to Putnam (1975), as most points of interest to

the present investigation (also analysed in Putnam 1970 and Kripke 1972) are covered there.

12. This point needs clarification. To start with, what Putnam says in this connection is not strictly true within the framework of his own system: specialists could well possess what constitutes necessary and sufficient conditions for a term falling within their domain, since they also have information fixing the extension of the term. So Putnam's claim that knowledge sufficient to fix the extension is not possessed by all or any speakers does not apply to all terms. What he is probably right about is that the 'psychological state' of the individual speaker does not determine the extension. I therefore tend to understand this rather sweeping statement as an attempt at drawing attention to the fact that meaning is not a function of the psychological state of any individual speaker, in other words that knowing the meaning of a term is not a matter of being in a certain psychological state. Another implication, however, is completely consistent with his theory, although not well illustrated by the terms just mentioned. Putnam claims that the idealization of supposing that there is such a thing for which the description 'tree' is true (i.e. the proposition 'This is a tree') is very severe. This cannot, however, be equally the case for terms such as 'gold' or 'water' which have an indisputably identifiable extension (accessible to scientists) at least concerning 'current scientific knowledge'.
13. I am obviously talking about the lexicon of the same language. Besides this, the lexicon of each language will necessarily reflect in large part both culture and language specific information (see also Pulman 1983:168).
14. I am using 'weak' here in Putnam's sense, where roughly speaking, the stronger the stereotype the nearer one is to actually possessing necessary and sufficient conditions, or, at any rate, enough information to distinguish the item in question from all related ones.

15. A 'category' is understood as a number of objects which are considered equivalent and designated by a name, e.g. 'cat', 'chair'.

16. The actual passage reads as follows:

"... words in natural language are not generally 'yes-no': there are things of which the description 'tree' is clearly false, to be sure, but there are a host of borderline cases. Worse, the line between the clear cases and the borderline cases is itself fuzzy. Thus the idealization involved in supposing that there is such a thing as the set of things of which the term 'tree' is true - is actually very severe".

(Putnam 1975b:133)

17. By this term I am referring to a characteristic of the basic level already mentioned, namely that its categories contain the most information.

18. For the collection of material, standard dictionaries of MG have been used: Bostanjoglou (1962) and Dimitrakos (1969). For special purposes, e.g. distinguishing between basic level and subordinate terms, the 'corpus' was supplemented with material from three fiction books: Tzortzoglou N. "*Otan Orgizete i Gi*" (When the Earth Gets Angry), Kazantzaki N. "*Megas Aleksandros*" (Alexander the Great), Sari Z. "*otan o ilios ...*" (when the sun ...). These were chosen simply because they contain a lot of MVs in extensive descriptions. Three newspapers 'Vima', 'Kathimerini', and 'Ethnos' were searched for supplementary material from September to December 1983 and two magazines 'Ikones' and 'Gineka' in 1985, to secure inclusion of more recent uses. My personal intuitions concerning this material were constantly checked against those of other native speakers of standard MG. It is therefore assumed that the sample of MGMVs used in the present analysis is at least representative.

## 2. THE 'STATES - PROCESSES - EVENTS' CATEGORIZATION AND ITS APPLICATION TO MOTION VERBS

### 2.1 Preliminaries

It is generally assumed and sometimes explicitly stated (Lyons 1977:482-4) that our perceptions of the physical world are organized and described within a conceptual framework which provides for the identification of (a) states-of-affairs and (b) processes, events, actions. Hence the 'archetypal' distinction between static and dynamic situations is almost unanimously accepted in most attempts at a semantic classification of verbs. However, this is about all that there is significant agreement on. As will be seen in what follows, there is no agreement on what 'dynamic' includes, nor on what the distinction is a distinction of. Sentences, predications and verbs are the usual candidates but also situations at large. Somewhat different positions are adopted by Vendler (1957), Kenny (1963), Seiler (1968), Leech (1969), Coseriu (1971), Miller and Johnson-Laird (1976), Lyons (1977), Mourelatos (1978). No single approach, though, can constitute an adequate basis for the description of the facts of MGMVs, so the main points of controversy have to be looked at in some detail.

It is important to investigate the extent to which the distinction bears on the semantics of individual Vs or characterizes verb-forms, or grammatical categories, since there is some truth in different claims, e.g. with regard to associations with 'aspect', with the verb versus adjective distinction as well as with the semantic features of individual Vs (duration vs instantaneity of action). Besides the interaction of these factors, additional ones can be detected in the area of MGMVs, such as the role of the nature of the 'theme' (moving object).

In English the distinction is assumed to lexicalize in the opposition between 'be' and 'have', on the one hand, and 'become' and 'get', on

the other. In the domain under investigation one can consider MG 'position' Vs such as: 'ime' (be)/'vriškome' (be found, located), 'steko'/'stekome' (stand), 'kaθome<sub>1</sub>'/ime kaθismenos-i' (be seated), 'verno/ime vermenos-i' (lean), 'ksaplonο<sub>1</sub>/ime ksaplomenos-i' (lie) as candidates for the lexicalization of stativity and all MGMVs as dynamic verbs, i.e. candidates for the lexicalization of the absence of stativity. Everything else is controversial.

The major issues that will hopefully be illuminated are:

1. Whether the distinction into two categories ('states' and everything else) is adequate.
2. Whether the boundaries between the categories are clear-cut or fuzzy and the distinction a matter of gradation rather than a categorical 'yes-no' phenomenon.
3. What is the 'object' of the distinction. (Does it affect verbs, predications or both?)
4. Which particular characteristics of verbs or whole predications contribute to the distinction - semantic characteristics and aspect of individual verb forms, presence and type of PP, semantic characteristics of the theme (such as 'countability') being the most obvious candidates.

## 2.2 An overview of the standard tests for distinguishing between states - processes - events and how to fail them

Before tackling the problems 1 to 4 (section 2.1) it is important to draw attention to two points. Firstly, the distinction between states and events is usually understood as an intuitive one, rarely defined and more often exemplified by means of sentences of the type:

Marietta understands Quantum Mechanics (state)

vs Marietta arrived at 5 o'clock (event).

Secondly, a number of syntactic tests have been used by a number of linguists to help identify stative and non-stative verbs, at least in English. A consideration of these tests seems in order here, as it has a bearing on all four problems.

The standard test for identifying stative Vs in English is to apply the rule for creating progressive forms: statives normally reject the progressive aspect, hence this method is extensively applied (Kenny 1963, Miller and Johnson-Laird 1976, among others). As the progressive aspect covers (among other things) the need to represent a situation as happening or developing through time, it is naturally incompatible with 'state' denoting verbs. Anderson (1973), relates constructions exhibiting progressive aspect to 'parallel' ones involving "be in the process of Ving", e.g.:

John is falling - John is in the process of falling

\*John is knowing the truth - \*John is in the process of knowing  
the truth.

This test could be used as a natural test for singling out English statives or, at least, for distinguishing between states and everything else. Notice, however, that problems arise already: I'm understanding more about Quantum Mechanics as each day goes by is offered by Mourelatos (1978:419) as an example of "semantic transposition", which causes 'understand' to function in an activity context unlike He understands the real nature of the problem which is given as an instance of a 'state'. Yet even Mourelatos, who recognizes that we are actually dealing with a categorization of predications rather than words, and moreover that aspectual

differences are all important, accepts that the special affinity of 'understand' or 'know' with states is beyond doubt.

Miller and Johnson-Laird (1976) suggest that the stative-dynamic distinction might be 'primitive' and that although its linguistic representation by means of stative vs non-stative verbs may not be universal, it is present in English verbs at least. Their suggestion seems to stem from Brown's (1973) observations to the effect that both the progressive '-ing' and the Imperative are present in the earliest sentences children utter, but never with stative verbs, although a number of other constructions are overgeneralized and therefore used with unsuitable stems. Notice, therefore, that the validity of the progressive and Imperative tests is not questioned. The occurrence of verbs with the progressive and the Imperative is not even understood as a simple test but rather as the decisive factor on the basis of which an intuitive distinction can acquire a 'formal' status. Thus Know the answer and Be seven feet tall are offered by Miller and Johnson-Laird (1976:474) as examples of the incompatibility between statives and the Imperative. It is not, however, immediately obvious that such isolated 'formal' means will necessarily yield unquestionable results. Notice, for instance, that although Know thyself is not what textbooks call 'good Modern English', is by no means as obviously unacceptable as the previous two examples. Similarly Be there at seven o'clock sharp seems quite acceptable. In short, incompatibility with the Imperative will obviously depend on whether the addressee is in a position to carry out the order (issued through the Imperative) in the first place. Hence the unacceptability of Be seven feet tall provides no argument concerning stativity in general and the semantics of 'be' in particular as Miller and Johnson-Laird intend it. It can obviously be argued that we are dealing with two different 'be' verbs or with a 'positional' vs a 'non-positional' sense of 'be'. The point is, however, that the ambiguity is clarified on the basis of the predication as a whole and that the Imperative test is natural only if it checks things like 'intentionality', the possibility of a verb to display a 'voluntary' vs a 'non-voluntary' characteristic, etc.<sup>1</sup> Notice also that the progressive test is not much safer. Verbs such as 'find' (used non-iteratively) do not take the progressive any more

than stative verbs, although they are intuitively understood as 'event' rather than stative.

The situation is even less promising when one turns to MG Vs of position and motion. The progressive test is obviously inapplicable in the case of MG as it does not have this particular formal means of representing situations developing through time. Besides, the 'parallel' method of explicitly using phrases like 'in the process of', 'in a state of' (which has been proposed for English) would yield quite bizarre MG sentences which should not be considered by the semanticist (as already argued in Chapter 1). Rather expectedly, the Imperative test stands no chance as a formal criterion; consider the case of 'ksero' (know) which is probably the stative 'par excellence': 'ksero to pos θa fiyi' (know it, that s/he will leave) or the equivalent 'na kseris pos θa fiyi' are perfectly good sentences. Similarly 'na ise sinexos ksaplomenos ja na kaliterepsis' (be continuously lying (in bed) to get better) is fine, although 'ime ksaplomenos' looks like a stative predication to me.

It would seem, at first sight, that tests based on the observation that, unlike events, states do not 'happen' would yield safer results. Hence Miller and Johnson-Laird (ibid.) use a test question of the form: What happened? predicting that 'state' predications cannot qualify as answers. Their example is: ??He believed in Santa Claus. Yet the nature of such tests (Question and Answer) is such that one would require a prior analysis of conversational principles at work in each particular case, before using them as safe, formal diagnostics. Notice that He knew everything by heart does not need a very elaborate supporting scenario to pass as a perfectly acceptable answer to What happened? although 'know' and 'believe' are 'model' statives. Possible counter-arguments to the effect that the 'real' answer to the question is in fact something about the logical subject's performance, for instance, which is actually implied by He knew everything by heart are beside the point; the fact remains that 'purely linguistic', 'formal' and 'verb-centred' tests are, for the most part, inappropriate or, at best, misconceived as heuristics for the 'stative-dynamic' distinction. So, quite expectedly: 'ti sinevi/ ti eyine?' (what happened?) can trigger a number of answers with what

seem to me stative predications, e.g. 'kaθotan/kaθete/ine kaθismenos meres oloklires akinitos se mia karekla' (he was seated/sits/is seated for days on end motionless on a chair). Apparently 'happen' is so general that even if it is used in conjunction with the predication whose status we seek to identify, the ambiguity is not solved through formal means. Hence He happens to understand the real nature of things is parallel to It so happens that he understands the real nature of things and even if one is not too happy about either sentence, one only has to consider He happens to be seven feet tall to realize that even in English we are back where we started.<sup>2</sup>

I have discussed the standard test I happen to be aware of in some detail in the hope of showing:

- (a) That simple or isolated 'formal' criteria are not as adequate as they are sometimes expected to be even with respect to the major distinction between statives and non-statives.
- (b) That the problem cannot be adequately approached through concentration on verb-forms alone. Miller and Johnson-Laird's remark that although, strictly speaking, it is the predicate as a whole that is stative or non-stative "it is tedious to keep such subtleties always in mind" (p.475) seems rather unwarranted in this particular case.

It seems more likely that the stative/non-stative distinction affects verbs through predications; hence a number of different factors have to be taken into consideration (such as those mentioned in 4 of the previous section). It also seems important to look for acceptable attempts at defining the content of the distinction(s) in question and then try to 'pair' definitions with formal syntactic criteria (e.g. what the verb is in construction with).

### 2.3 Further criteria for the definition of states-processes-events

A number of linguists, e.g. Coseriu (1971), Leech (1969), Seiler (1968) and Langacker (1975), operate with a dichotomous categorization of predications into 'states-events' or 'states-processes'. In what follows it will become obvious that we need more than a two-way classification. A fairly concise account of what the notions 'state', 'process', 'event' involve is offered in Lyons (1977) and can be used as a first step towards defining these notions. Lyons accepts the major distinction between static and dynamic situations and then proceeds to specify the content of the distinction:

"A static situation (or state-of-affairs, or state) is one that is conceived of as existing, rather than happening, and as being homogeneous, continuous and unchanging throughout its duration. A dynamic situation, on the other hand, is something that happens (or occurs, or takes place): it may be momentary or enduring; it is not necessarily homogeneous or continuous, but may have any of several temporal contours; and, most important of all, it may or may not be under the control of an agent. If a dynamic situation is extended in time, it is a process; if it is momentary, it is an event; and, if it is under the control of an agent, it is an action. Finally, a process that is under the control of an agent is an activity; and an event that is under the control of an agent is an act." (p.483)

This definition juxtaposes 'existing' to 'happening' and 'momentary' to 'enduring'. These oppositions can be used as a working hypothesis to differentiate between states, processes and events. The additional notions of 'control', 'agent', 'act' and 'activity' are only important in a discussion of what I consider a separate issue, namely agentivity, and are dealt with in detail in the following chapter. As I have already referred to 'activities', however, (in the understanding that the term is more widely used and easier to interpret on the basis of common everyday use) it seems necessary to show schematically where 'activity' stands in relation to Lyons' remaining categories.

Process + agent = activity  
Event + agent = act  
Activities and acts are actions

Having isolated the factor of 'control', we can concentrate on the content of the tripartite division into states, processes and events. The only feature which distinguishes states from everything else is that they cannot be said to 'happen' or 'occur'. Processes are distinguished from events as being enduring rather than momentary. Events and processes can be said to mark a change of state, i.e. a transition from an initial state to a final one. If this transition has some duration it is a process; if not, an event.

It is rather obvious that in order to categorize predications (and ultimately specific verbs) we need further elaboration of what the relevant notions involve. Philosophers of language such as Vendler (1957), and Mourelatos (1978) have discussed these distinctions in a rather illuminating way. The main points of these accounts will be looked at briefly and connected to the facts of MGMVs.

Vendler (1957) observes that while 'running' has no set terminal point, 'running a mile' has a 'climax' which has to be reached if "the action is to be what it is claimed to be" (p.145); i.e. running a mile has to be finished to be true. Neither Vendler's terminology nor his categorization will be adopted here, but it is important to notice for a start that the distinction between a changing situation (running) and a similar one involving a culmination, e.g. running a mile (or an end point presumably, e.g. running to the kiosk) is recognized for what it is; the former is not arbitrarily named a 'state' and 'run' does not risk acquiring the feature [+stative] as in Seiler (1968). The immediate implication for a sentence like (1):

- (1)        *ta peđja trexun ston kipo*  
             the children run/are running to/in the garden

is that it cannot be basically considered as involving a state. If it is understood as involving a goal, it can be interpreted as being

a kind of event (in Vendler's terms an 'accomplishment'); if it is understood as involving a locative, it can be interpreted as being a kind of process (in Vendler's terms an 'activity'). Vendler is not responsible for these interpretations, but I consider that they are in keeping with his (1957) account of what processes are, i.e. homogeneous in that their time stretch is inherently indefinite and in that there is no culmination and no anticipated result. We will return to the interpretation of examples such as (1) after completing the presentation of the relevant notions.

A further distinction is drawn between 'accomplishments', which involve time periods, and 'achievements' which involve time instants (e.g. reaching the hilltop). The implication for sentences (2) and (3):

(2)        *anevike stin korifi mesa se mia ora*  
             he went up to the top within one hour

(3)        *eftase stin korifi mesa se mia ora*  
             he reached the top within one hour

is that although they are similar in many respects, the former one is an 'accomplishment' and the latter an 'achievement'. While (2) implies that whatever is involved in '*aneveno*' (go up) took one hour (a time period) to complete, i.e. that 'going up' went on for an hour, (3) does not imply that whatever is involved in '*ftano*' (reach) went on for one hour; 'reaching' takes a time instant (i.e. a point and not an interval) to complete.

The difference between (2) and (3) can ultimately be attributed to the inherent semantic features of the two verbs involved and in particular to some feature 'momentary' vs 'enduring'. Notice, however, that duration (by itself) is not sufficient in distinguishing between events and processes, as it appears to be in Lyons (1977). It is used here to distinguish between 'achievements' and 'accomplishments' which are both subsumed under events by Kenny (1963) and Mourelatos (1978). Mourelatos notices that both

categories in question ('developments' and 'punctual occurrences', respectively, in his terminology) take definite time but while the former are intrinsically characterized by duration and refer to the whole of the time segment, the latter cannot occur over/throughout a temporal stretch, but only at a single moment (within a temporal stretch).

Hence the main points at which events differ from processes are: (a) homogeneity (which everybody seems to accept as characterizing processes only), i.e. the prerequisite that any part of a process be of the same nature as the whole and (b) that the time stretch of processes ('activities' in Vendler) is indefinite. Contrary to these, events involve some culmination or an anticipated result and definite time. States, finally, are generally understood as not constituting a change, although "they may arise or be acquired as a result of change" (Mourelatos 1978:416). Clearly they may also endure or persist over stretches of time.

Adopting Mourelatos' terminology, where processes and events are understood as 'occurrences', contrary to states which do not occur/happen (cf. Lyons 1977) and developments and punctual occurrences are subcategories of events, we can present the relevant criteria schematically as follows:

	CHANGE/ OCCUR	HOMOGENEOUS	INDEFINITE TIME	DURATION
States	-	+	+	+
a [ Processes	+	+	+	+
b [ Developments	+	-	-	+
Punctual Occurrences	+	-	-	-

note: a= occurrences,  
      b= events

The fact that states do not constitute a change is understood here as saying little more than that they do not happen/occur, hence a single dimension is used in the above schematic representation. Besides,

the fact that events have definite times is understood here as linked to the prerequisite that there be no culmination and no anticipated result, hence the latter properties are not allocated a separate column. So if we wish to differentiate between 'running' and 'running-a-mile' (Vendler's examples of an activity and an accomplishment respectively) homogeneity by itself is not adequate. As Mourelatos observes (for different purposes):

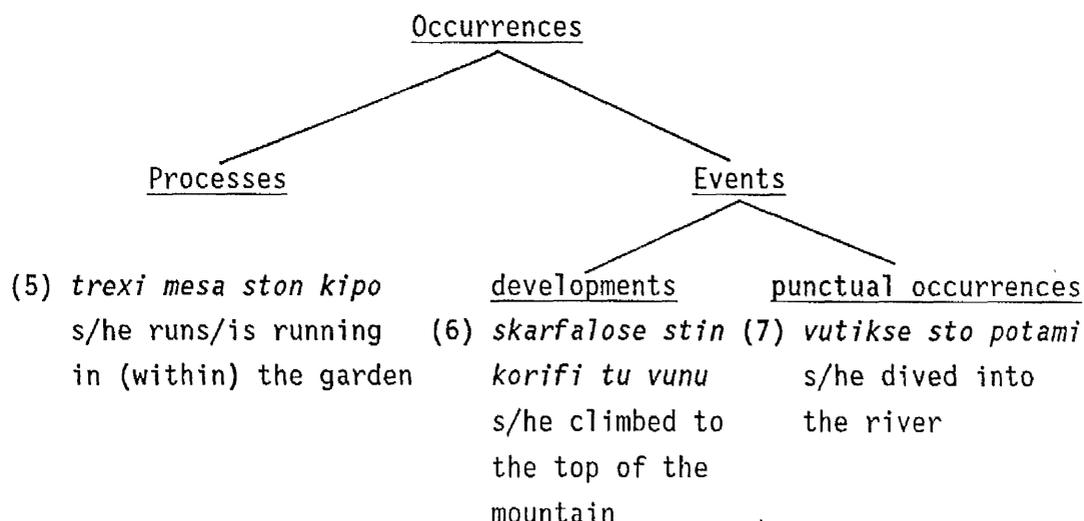
"the generic activity of running can be further differentiated into a species (one among indefinitely many) of running-a-mile without its losing its character as an activity. In other words, regardless of whether a mile is or fails to be run, any substretch of running-a-mile activity divides homogeneously into sub-stretches of the same" (ibid.:420).

The restriction imposed on the activity of running by 'a mile' is comparable to that of a goal specification, e.g. running to the kiosk. Unlike both, though, running in the garden can be linked to the unrestricted and open-ended activity of 'running' in the sense that there is no foreseeable and stated termination.

With these specifications in mind we can now exemplify the relevant notions with MGMV predications and present them schematically as follows:

#### States

- (4) *kaθete sinexia brosta sto paraθiro*  
s/he sits constantly in front of the window



#### 2.4 Adverbials of time and goal vs locative

In order to see more clearly the implications of examples (4)-(7) it is useful to see what sorts of time adverbial phrases they are compatible with. Four kinds of such adverbials need to be distinguished for the present purposes:

- (a) those referring to the duration for which a situation is valid, e.g. '*epi mia ora*' (for one hour);
- (b) those referring to the frequency of periods of time during which a situation is valid (usually called 'frequency adverbials'), e.g. '*kaθe mera*' (every day), '*sixna*' (often);
- (c) those referring to a point in time at which a situation is valid, e.g. '*stis 6*' (at 6);
- (d) those referring to the number of times a situation (which is repeated) is valid (usually called 'cardinal count adverbials'), e.g. '*4 fores*' (4 times).

Notice, first, that if (4) is to be understood as a stative predication it cannot accept any of the adverbials (a)-(d) strictly speaking. The moment (a) or (b) type of phrases replace 'sinexia' the implications of an unlimited existing situation are removed. (Clearly (c) and (d) are completely inapplicable.)

The pattern which emerges if (a)-(d) are attached to examples (5)-(7) looks like this:

	(a)	(b)	(c)	(d)
	<i>epi mia ora</i>	<i>kaθe mera</i>	<i>stis 6</i>	<i>4 fores</i>
	for one hour	every day	at 6	4 times
Process				
(5) <i>trexi mesa ston kipo</i>	+	+	-	-
s/he runs/is running				
within the garden				
Event: Development				
(6) <i>skarfalose stin korifi</i>	-	-	?	+
<i>tu vunu</i>				
s/he climbed to the top				
of the mountain				
Event: Punctual Occurrence				
(7) <i>vutikse sto potami</i>	-	-	+	+
s/he dived into the river				

The combination of (6) with (c) results in (6a): '*skarfalose stin korifi tu vunu stis 6*' (s/he climbed to the top of the mountain at 6) which is not a completely acceptable sentence. If the goal expression is replaced with a different one, e.g. '*sto trapezi*' (on the table) there is no problem with a specification of the point in time the event took place for obvious common sense reasons: the event can be understood as a punctual occurrence and will behave exactly like (7). Hence (6) is used as a more or less clear case of a development. As already pointed out, however, if a time period adverbial such as '*mesa se mia ora*' (within one hour) is used, the

difference between sentences such as (6) and (7) is brought out most clearly:

(6b) *skarfalose stin korifi tu vunū mesa se mia ora*  
s/he climbed to the top of the mountain within one hour

(7a) \**vutikse sto potami mesa se mia ora*  
s/he dived into the river within one hour.

In these rather carefully chosen and oversimplified cases (examples (4) to (7)) different verbs have been used in the hope of getting as 'accurate' an illustration of the main points of the distinction as possible. Notice how dramatically the overall picture changes if different verb forms of the same verbs are used:

	(a)	(b)	(c)	(d)
	<i>epi mia ora</i>	<i>kaθe mera</i>	<i>stis 6</i>	<i>4 fores</i>
	for one hour	every day	at 6	4 times
(8) <i>etrekse mesa ston kipo</i>	?	-	-	+
s/he ran within the garden				
(9) <i>skarfalone stin korifi</i>	??	+	??	-
<i>tu vunū</i>				
s/he climbed/was climbing				
to the top of the mountain				

Two main things have to be noticed: firstly, that the new factor brought into play is 'aspect'. The difference between (6) and (9) is an aspectual one; the time remains constant, i.e. past. A brief presentation of the main facts of MG Vs (in this respect) will be given shortly, focusing on the few points necessary for an appreciation of the distinctions under consideration. Secondly, it must be noticed that we have already moved into an area where situations (contrary to the carefully chosen example sentences (4)-

(7)) are much less easy to identify and consequently match accurately with the 'process' - 'event' labels.

A combination of (8) with (a) may be acceptable. If a goal expression is, however, substituted for the locative, the resulting sequence is completely unacceptable, i.e.:

- (10)     \**etrekse sto periptero epi mia ora*  
          s/he ran to the kiosque for one hour.

This is a further indication that goal constitutes an additional obstacle to the possibility of a situation being understood as a process; the predication '*etrekse sto periptero*' is completely incompatible with the notion of duration. For the same reason, a combination of '*etrekse sto periptero*' with (c) (i.e. a point in time) is quite acceptable. This new situation is probably understood as a fairly clear case of an event, as will be shown after a discussion of the aspectual change also involved.

A combination of (9) with (a) is problematic only owing to the factor of goal. If a locative, e.g. '*to vuno*' (the mountain) is substituted for it, the resulting sentence is perfectly acceptable:

- (11)     *skarfalone to vuno epi mia ora*  
          s/he climbed/was climbing (up) the mountain for one hour.

Once the obstacle/restriction imposed by the specification of the goal is removed, '*skarfalone*' is 'naturally' combinable with duration and the possibilities of understanding the various resulting predications as processes are increased.

As a final remark on examples (8) and (9) notice that a combination of (9) with (c) needs an elaborate scenario to interpret even for those speakers for whom it is marginally acceptable. It appears that the combination of a goal restriction with a point in time adverbial

is a strong factor of 'eventualization' and clashes with the 'process' implication of the verb.

An exhaustive analysis of the implications of all possible combinations of examples (5) - (10) would require a previous detailed analysis of time adverbials and possible goal expressions, neither of which lies within the scope of the present investigation. Besides, considerably more elaboration would be required if combinations of various time adverbials were taken into consideration, e.g. '*kaθe mera stis 6*' (every day at 6), '*4 fores to mina*' (four times a month). Therefore, this brief presentation is to be understood as simply indicative of the role of goal and an introduction to that of aspect in determining how predications are understood with respect to the 'state-process-event' (henceforth S-P-E) distinction.

#### 2.5 Aspect, states-processes-events, and Modern Greek motion verbs

Despite the fact that aspect in MG has been the object of probably more attention than any other area of MG linguistics, there is still no uniformity of opinion even on the basic distinctions, i.e. on whether 'Perfect' should be included together with 'Perfective' and 'Imperfective' as a third aspect or not. As most linguists seem to accept, however, that Perfect is not as crucial as the other two, the matrix which is presented here (a shortened version of that presented in Babiniotis and Kontos (1967:148)) adopts a bipartite division.

		Aspect		Tense	
		PAST	PRESENT		
Imperfective (If.)	Duration	'Imperfect' ' <i>etrexα</i> '	'Present' ' <i>trexo</i> '		
	Non-duration	'Aorist' ' <i>etrekσα</i> '		[' <i>trekso</i> ': Non-Past]	
Perfective (Pf.)	Complete		'Present Perfect a' (Pr.Pf.a) ' <i>exo treksi</i> '		

Future, Subjunctive and Passive forms are deliberately omitted as the points that have to be made do not require additional information from other tenses, voices or moods (except for Perfect b' which will be mentioned separately when it needs to be juxtaposed to Present Perfect a'). The Pf. non-Past form ['trekso'] has been added to the shortened Babinotis and Kontos' Table which is used for the Aorist Subjunctive, Perfective Future, Pr.Pf. and Pluperfect.

There is more or less general agreement that by using the If. the speaker sees the verb as referring either to a continuous situation in progress, i.e. as a situation which is 'progressive' or 'durative' or to a series of repeated situations not viewed as a whole, i.e. 'iterative' situations (Mackridge 1985:105, Babinotis and Kontos 1967:147). A possible combination of the different views expressed for the Pf. would be that by using the 'Pf.-non-durative' the speaker is viewing the verb as referring to a situation which is momentary or the duration of which is not considered important; it is viewed as a completed whole, a single 'event' whose repetition or duration are of no significance. By using the 'Pf.-complete' (Babinotis and Kontos *ibid.*) or the 'Perfect' (Mackridge 1985:116) the situation is viewed as a complete whole, as an event which took place in the past and is completed at the time of utterance (Tzartanos 1946:277).<sup>3</sup>

The relevance of aspectual distinctions in MG for the S-P-E categorization should be quite evident. Lyons (1963), for instance, recognizes the interconnection between aspect and the S-P-E distinction (or some form of this distinction), on the one hand, and semantic features of individual verbs, on the other. On the basis of such considerations verbs are categorized into two main classes: one comprising 'action-event-state' verbs, the other including 'event-state' verbs.

It is conceivable that MGMVs could be classified into those which are generally understood as involving some feature 'non-durative'/'momentary', e.g. 'vutao<sub>1</sub>' (dive), 'tinazo' (shake up), 'piðao' (jump), and those which imply 'duration', such as: 'xorevo' (dance), 'aneveno' (go up), 'trexo' (run). The Imperfective forms of the

verbs belonging to the former class describe iteration of events, e.g.:

- (12) *vutuse kaθe liyo sti θalasa* (If.+ Past)  
s/he dived/was diving every now and then into the sea.

Their Perfective forms describe punctual occurrences (example (7)). The Perfective forms of the verbs of the latter class describe events which do, however, have some duration, e.g.:

- (13) *xorepsan moni tus stin pista epi θio ores* (Pf.+ Non-duration + Past)  
they danced alone on the floor for two hours

It is evident that (13) is a development rather than a punctual occurrence owing to the inherent semantic feature of duration of 'xorevo' (dance).

It has to be noticed that the verbs of neither category can produce predications with the characteristics of a truly stative situation (with very few possible exceptions which will be discussed shortly). The only means available within the aspectual system of MG which can impose a more-or-less stative understanding on predications involving such verbs is Perfect b'. Unlike Perfect a', which refers to 'completed events', Perfect b' describes the result of an action, or a state "not severed from the time of utterance" (Babiniotis 1972:44). This explains why only the latter tense is incompatible with (d) type time adverbials. Consider as an example sentence (14):

- (14) *ine anevasmeni sto θendro*  
she is 'gone up' at/to the tree  
she is on the tree.

Such predications refer to the position rather than the motion of an object, but can be said also to incorporate (through the 'root meaning' of the verb involved in each case) a reference as to how the



degrees). This ideal situation, which matches 'event' verbs with a semantic feature 'momentary', and 'process-event' verbs with a corresponding feature 'durational', plus an 'in between' category, does not take us very far. Even within the grave limits arbitrarily applied to this presentation, a great number of cases cannot be accommodated in such a frame. First of all, it is not as easy as it may seem to differentiate between states, processes and simple iteration of punctual occurrences. Consider the situation within the area of durational MGMVs. One particular verb '*tremo*' (tremble) does not have a Pf. form at all. In my understanding it is processual par excellence. It could be also understood, however, as iterative: as involving a series of uninterrupted punctual occurrences. Verbs such as '*talandevome*' (oscillate), '*eorume*' (sway, swing), which do have Pf. forms, present a similar problem to '*tremo*' in predications where they appear with If. aspect. An even more interesting case can be exemplified with '*virizo*' (turn). Compare (17) to (18) and (19).

(17) *i yi virizi viro apo ton iljo* (If.+ duration + Pres.)  
 the earth turns around the sun

(18) *o milos virize apo ton aera apo tis 5 os tis 7* (If.+ duration + Past)  
 the windmill turned/was turning  
 by the wind from 5 to 7

(Pf.+ Non-duration + Past)  
 (19) *virise ksafnika ke ton kitakse*  
 s/he-turned suddenly and at-him looked  
 s/he suddenly turned and looked at him

There is no need for a detailed analysis of the specific factors responsible for the different understandings of (17)-(19) here. The example is used to point out two things. Firstly, on the basis of the characteristics discussed at length in the previous section (17) seems more processual than (18), although it is undoubtedly the same verb and the same aspect in both cases. In my understanding (17) is very much like a state predication and (18) is not prototypically

processual (like (5), for instance) but has some of the characteristics of a development. Once again the borders are not clear. Secondly, (19) is a punctual occurrence, as are also possibly most predications with 'γirizo' + Pf. aspect. This is not the case with either 'xorevo' (dance) or 'trexo' (run) which are also durational verbs. On the other hand, the solution of positing two different 'γirizo' verbs, a 'durational' one corresponding to (17) and (18) and a 'momentary' one corresponding to (19) seems rather unsatisfactory. More importantly, one can get a similar overall picture from a number of MGMVs, both intransitive and transitive.

## 2.6 Nature of the theme

It is interesting to notice that one more factor crucial to the S-P-E distinction can be fairly easily identified in the case of transitive causatives; it bears on the characteristics of the object of these verbs (and the subject of their corresponding intransitives, if such correspondences happen to exist). As a characteristic example, compare (20) to (21) and (22).

- (20) *?evaze to vivlio sto trapezi* (If.+ Past)  
s/he put/was putting the book on the table
- (21) *evaze petreleo sti ðeksameni* (If.+ duration + Past)  
s/he put/was putting oil into the tank  
s/he was pouring oil into the tank
- (22) *evaze ta vivlia sto trapezi* (If.+ duration + Past)  
s/he put/was putting the books on the table
- (20a) *evale to vivlio sto trapezi* (Pf.+ Non-duration + Past)  
s/he put the book on the table

(21a) *evale petreleo sti deksameni* (Pf.+ Non-duration + Past)  
s/he put oil into the tank  
s/he poured oil into the tank

(22a) *evale ta vivlia sto trapezi* (Pf.+ Past)  
s/he put the books on the table

Unlike (21) where 'evaze' is clearly durational and where the resulting predication has a number of the characteristics of a process, (20) can only refer to a series of 'punctual occurrences' (or unsuccessful attempts). Moreover, the situation referred to in (21) is different from that corresponding to (22), although the aspectual element of duration is literally applied to both cases. It seems that (21) is a more typical case of a process than (22), as it is felt to imply more homogeneity. Be that as it may, (20a) can only involve a punctual occurrence, (21a) is a fairly typical case of a development and (22a) may be interpreted either as a development or as a punctual occurrence (on the assumption that all the books were put on the table together, at one stroke).

Similar things can be noted for 'sikono skoni' (I raise dust) compared to 'sikono to vivlio apo to patoma' (I lift the book from the floor), or 'vyeni kapnos' ('rises smoke', i.e. smoke is rising) versus 'vyeni apo to spiti tis' (she is coming/going out of her house). The implications for the S-P-E distinction of 'mass' vs 'count' Ns and 'singular' vs 'plural' constitute only one, fairly straightforward, factor. Other factors which are less clear and easily identifiable have a similar effect to that just hinted at. For instance 'evaze ti roda sto aftokinito' (s/he put/was putting the wheel on the car) is more likely to behave like (21) than (20), although the 'formal' characteristics of 'roda' (wheel) are more similar to those of 'vivlio' (book) than those of 'petreleo' (oil).

The description of the facts will be arbitrarily brought to an end at this point for the reasons already given in earlier sections of this chapter: this presentation is restricted to a few points which have seemed (a) particularly relevant and (b) fairly straightforward and

consequently manageable within the space available. These points have focused on factors such as presence or absence and type of goal, aspect and tense and type of transitive verb object (or intransitive verb subject) with respect to 'count'/'mass' Ns. The interplay of such factors with specific verbs has been shown to be decisive in how related predications are understood regarding the S-P-E distinction. It remains to be seen whether these observations can be used in order to establish possible correspondences between a characterisation of predications and a characterisation of specific MGMVs.

## 2.7 Concluding remarks on the redefinition of states-processes-events

It has been suggested at various points in this chapter that neither situations in reality nor specific sentences or verbs can be neatly distinguished as possessing all and only the characteristics usually attributed to states, processes and events. They seem, rather, to be located along some sort of a S-P-E continuum. On the assumption that the central/most characteristic points along this continuum can be identified, specific predications involving MGMVs have been offered as characteristic 'realizations' of these points in the area of MGMVs (examples (4)-(7)). It can be claimed that within this area of investigation, predications of type (5): '*trexí mesa ston kipo*' (s/he is running/runs within the garden) are instances of prototypical processes; and predications of type (7): '*vutikse sto potami*' (s/he dived into the river) are instances of prototypical events. It also seems plausible that processes looked at 'a posteriori' (i.e. Past-tensed) will be less processual, since what they describe has been somehow accomplished and its time is more definite than otherwise (i.e. past). More serious factors 'pushing' predications towards an 'event' rather than a 'process' understanding are perfective aspect and a specification of goal, since these involve an 'anticipated result' or a 'culmination'. It is interesting to notice at this point that verbs which require a goal specification, e.g. '*piveno*' (go) are even less likely to be understood as processual ones than others which may be equally durational and appear in similar environments. This may explain why (23):

- (23) \**piyene sto sxolio epi mia ora* (If.+ duration + Past)  
s/he was going to-the school for one hour

is for some speakers even worse than (24) or (25):

- (24) ?*skarfalone stin korifi tu vraxu* (If.+ duration + Past)  
*epi mia ora*  
s/he climbed to the top of the rock  
for one hour

- (25) ?*metakomize sto kenurjo spiti* (If.+ durational + Past)  
*epi duo meres*  
s/he moved/was moving to the new house  
for two days

It may be that, all other things being equal, '*piyeno*' incorporates an 'anticipated result', i.e. is 'inherently' less processual (or more event-like) than other durational verbs. It is therefore suggested that the most prototypical instances of a process (in this area) involve a motion verb with If. aspect, Present-tensed, not supplemented with a goal specification.

The link between the Aorist of Greek (both Classical and Modern) and events seems fairly well established. This is a rather natural consequence of the fact that non-duration, definite time and an accomplished situation characterize both the Aorist and events. It has been shown, however, that certain MGMVs allow a collocation of Aorist forms with typical durational adverbials, while others do not, e.g. '*xorevo*' (dance) vs '*skarfalono*' (climb):

- (26) *xorepsan epi duo ores* (Aorist)  
they danced for two hours

- (27) \**skarfalosan epi duo ores* (Aorist)  
they climbed for two hours.

It is suggested, therefore, that verbs which behave like 'xorevo' in this respect are more prototypically processual than others which behave like 'skarfalono',\* The equation of MG Aorist with absolute absence of duration seems unwarranted. It seems, however, plausible to expect that the most prototypical instances of an event would involve a motion verb in the Aorist with a goal and a point-in-time specification, since typical events are expected to be temporally and locally restricted. The reason why punctual occurrences are understood here as more typical events than developments is linked with the discussion of prototypes and the assumption that the most prototypical instances of a category are expected to be maximally different from those of any other category. Within the limits of this rough S-P-E distinction, punctual occurrences are evidently further from processes (and states) than developments.

It can be argued that even situations characterized here as punctual occurrences par excellence, such as those represented by example (7) 'vutikse sto potami' (s/he dived in the river), can be said to have some duration. It is quite conceivable that for some speakers, at least, 'vutikse' is valid from the moment the diver's feet leave the ground, to the moment his/her whole body is under water. For others, 'vutikse' is valid only the minute the diver's body touches the surface of the water and starts submerging: the interval is zero. This is in effect the interpretation adopted here for (7).

It has already been pointed out that the notion of 'state' is, strictly speaking, incompatible with motion verbs as such. It has also been mentioned that Pres.Pf.b' verb forms are on the borders of verbal and adjectival phrases. It is as if some property is attributed to the subject of the predication which is regarded as more or less permanent. Comparing If. and Pres.Pf.b' forms of MG verbs of position (see examples (15)-(16) and subsequent discussion), it was suggested that situations described by means of the latter form of the verb are probably viewed as more permanent than otherwise. This implies that within the area under investigation the most prototypical instances of states involve verbs of position in a Pres.Pf.b' form and a temporally unrestricted environment, e.g. without reference to the 'ingressive' stage, (the beginning of the

\*(possibly because "xorevo" is not goal orientated).



where no reference is made to the change of state, i.e. the event which resulted in the book's position. Similarly, an example such as:

- (30) *to vivlio afto exi bi sto rafi apo to 1912* (Pres.Pf.a')  
this book has 'entered' on-the shelf since 1912.  
this book has been on the shelf since 1912

can be interpreted as representing a situation even less stative and more 'event-like' than that described in (28). Looked at from a different angle it is again a case of an event embedded inside a state (although MG Pres.Pf.a' is not usually linked with 'states').

## 2.8 Test frames

This chapter has up to the present point presented the view that whole predications can be characterized as more or less prototypical instances of stative, processual and 'event' situations depending on a number of different elements present in them. Some of the relevant elements have been identified (aspect, goal, etc.). It is thought that compatibility of different MGMVs with different combinations of some of these elements may give a picture (however inaccurate) of the relative 'stativity', 'processuality' and 'event-like nature' of the verbs under investigation. Clearly the number of 'compatibility possibilities' is great. For reasons of space and 'manageability' of the material, however, only five such possibilities are considered and used jointly as a heuristic. Far from being a full-blooded categorization, the resulting schema which appears in List III consists simply of 'frames' used as test-environments for some MGMVs. Position verbs are not tested, neither are 'stative' verb-forms (e.g. Perfect tenses). The reason is rather obvious: if a formal distinction is to be made anywhere, "it is more logical for it to be made within descriptions of dynamic situations than within descriptions of static situations" (Comrie 1976:51).

The 'frames' used are as follows:

I. If. aspect + Present + [*epi mia ...ora*]PP  
for one ...hour

(Continuous motion)

II. Aorist (i.e. Pf.+ 'non-duration' + Past) + [*epi mia...ora*]PP  
(Motion understood as continuous but completed (definite time))

III. Aorist + [*apo NP<sub>LOC</sub> se NP<sub>LOC</sub> mesa se mia...ora*]PP  
from NP<sub>LOC</sub> to NP<sub>LOC</sub> in one...hour  
(Motion understood as restricted both locally and temporally)

Each verb is put in one or more of the resulting columns B,C,D,E,F,G according to which frames it is compatible with. Thus, column B contains those verbs tested which are compatible with all three frames (I, II and III). Column C contains the verbs which allow I and III but block II (hence the box corresponding to II is black). Column D verbs allow only frame III. The remaining two columns (E and F) contain verbs which normally block all three possibilities. Their difference lies in that while E verbs may appear in frames I and II if the implication is 'iteration' rather than 'continuous motion' (which the frames are meant to imply), F verbs do not allow II at all (i.e. even if we wish to attempt an 'iterative' understanding).

It is assumed that the further to the left in List III a verb appears the more processual it is, and the further it appears to the right, the more 'event-like' it is. It can be said that roughly speaking E and F verbs are 'event' verbs. Prototypically processual MGMVs are also excluded from the test and constitute column A. These are: '*tremo*' (tremble), '*perifero*' (take s.th. here and there), '*periferome*' and '*triyirizo*' both meaning 'roam around', '*kikloforo<sub>1,2</sub>*' (circulate). The reason is that they either do not have a Pf. form at all ('*tremo*') or, if they do, it is of restricted use, so they cannot be really submitted to tests making use of the Aorist. Besides, as they are incompatible with the notion of a 'journey' (i.e. 'from one point to another'), they cannot be submitted to the test for frame III. It seems intuitively correct to

posit 'tremo' as the most prototypical instance of a processual MGMV and consider the others in between categories A and B. An additional candidate for such an in between category which also blocks III (for reasons other than the combination of Aorist plus a 'journey' specifying PP) is the set of verbs: 'anakatevo<sub>TR</sub>-ome<sub>INTR</sub>' (stir, toss), 'anataraso<sub>TR</sub>-ome<sub>INTR</sub>' (stir up, shake), 'tarakunao<sub>TR</sub>-jeme<sub>INTR</sub>' (shake up). The verbs of this set present a special problem, namely that it is not immediately obvious whether it is 'continuity' or 'iteration' that they imply. A similar problem is present in verbs appearing at the other end of this 'scale' of frames (categories) and is discussed in that connection under Comment 12. Notice that each column includes also the numbers referring to the comments which accompany specific sets of verbs or individual verbs. These comments on List III follow immediately.

## 2.9 Comments on List III

1. 'perikiklono<sub>TR</sub>-ome<sub>INTR</sub>' (encircle) can pass II, but with the implication: 'performed the act and then stayed there for one...hour'. Since this is clearly not the intended implication, it appears in category C. The same applies to a number of other Vs belonging to different categories (e.g. 'kaθizo<sub>TR</sub>-kaθome<sub>INTR</sub>' (sit)) and will not be marked every time it occurs as it does not affect the issue at hand.
  
- 2a. The main point in relation to this set of Vs is that if the goal is specified they move to category D, i.e. become less processual (and consequently more 'event-like'). Differences between individual Vs as to the type of goal expression each of them allows are of no concern here (e.g. 'trexo sto periptero' (I run to the kiosque), vs \*'perpatao sto periptero' (I walk to the kiosque). Obviously, the same environment would allow the Aorist provided we have NP<sub>LOC</sub> instead of goal, i.e. a specification of the place in/at/within which the motion described by the V takes place: e.g. 'trexi ston kipo epi mia ora' is fine only if it is understood as 's/he runs/is running in/within the garden for one hour'.

- 2b. This set is again characterized by a transposition to the right (from C to D), thus giving rise to rather 'event-like' predications, with a goal specification, e.g.:

\**anevenume stin korifi tu kabanarju epi mia ora* '   
we go/are going to the top of the bell-tower for one hour.

3. One of the major problems of this categorization, and a clear example of indeterminacy, in my view, is exemplified by '*skarfalono*' (climb) and '*piðao*' (jump). Both of them could conceivably (in other words, for some speakers) behave like B category/frame Vs if they are understood as implying 'continuous physical activity/exercise' in a context concatenating different 'manner-of-motion' instances of physical exercise, e.g. '*etrekse epi mia ora, skarfalose epi misi ora, perpatise epi ðio ores, piðikse epi misi ora, ...*' (he ran for an hour, climbed for half an hour, walked for two hours, jumped for half an hour,...).
4. It seems interesting to compare '*vutao*' (dive) to '*piðao*' (jump); it appears that the only reason why the former could not appear in category E is that, although it can be also interpreted as an instance of 'physical exercise', it is more momentary than the former and even less homogeneous.
5. This set allows C environments (C frame) with an NP<sub>LOC</sub> (as above, specifying the place where/on/within which the motion takes place) or without any locative specification (e.g. '*anevenume epi mia ora*' (we go/are going up for an hour), '*anevenume ti skala epi mia ora*' (we go/are going up the staircase for an hour)).
6. As already discussed in connection with the nominalizations test, these Vs present a special problem. To start with, '*metafero*' (carry/transport) has no distinct perfective aspect (hence Aorist and Imperfect are morphologically identical). Therefore only the passive form ('*metaferome*') can be submitted to the tests. They also seem to block II if goal is specified, but I have been unable to get agreement from native speakers as to whether they

also block I or not. It seems to me that the interpretation corresponding to English 'carry' behaves more 'processually' than the 'transport' use. In either case they both seem to become more 'event-like' with an explicit specification of goal (e.g. \**i valitsa metaferθike sto staθmo epi mia ora* (the suitcase was carried to the station for one hour)).

7. A rather interesting case is exemplified with '*sikono*<sub>TR-ome</sub>*INTR*' (raise/lift, rise). The commonest understanding of these verbs seems to be the one focusing on the source, e.g. '*sikose to vivlio apo to patoma*' (s/he lifted the book from the floor). This is the most restricted interpretation temporally (and perhaps also locally) of these verbs; hence they are listed under F, together with typically 'event' verbs, with the proviso that III is inapplicable, strictly speaking, since it explicitly refers to both source and goal. If, however, the focus moves to the goal or the 'journey' of the theme, these verbs behave much less like 'event' verbs and are listed under C and D, e.g. '*o yeranos sikoni to pjano sto tetarto patoma*' (the crane is raising the piano to the fourth floor).
8. A vast number of the verbs appearing in this list change category depending on the nature of the theme (moving object), a general issue already discussed briefly in the relevant section which will be explained theoretically at greater length in the next one. What needs to be noted here is that if the theme is 'mass' or 'plural', the verbs marked for Comment 8 in category C move to category B, while those marked for the same comment in categories E and D move to C. An additional but related point has been made in connection with '*stelno*' (send). Notice the difference between (a) and (b) below:

(a) \**stelno yrama sti yermania epi mia ora*  
I send/am sending a letter to Germany for one hour

(b) *stelno minima me ton asirmato epi mia ora*  
I am sending a message by radio for one hour.

On the basis of the (a) type of examples 'stejno' is listed under F, while the (b) type of sentences with the same verb point to the possibility of its moving to category C. It is mentioned separately in order to indicate that 'count' vs 'mass' has to be further analysed in connection with certain entities (e.g. 'minima' is grammatically 'count'). A similar point has been raised in connection with 'vazo ti rođa' (I put/am putting the wheel (on the car)) in section 2.6. The whole issue is taken up in the following section.

9. The case of verbs such as 'virizo<sub>1,2</sub>' (turn) has already been discussed in the section on aspect and it should be quite clear by now that such verbs can cover almost the whole range of S-P-E possibilities. They appear here under F with the proviso that this applies only to their 'non-durational' interpretation. A similar situation is presented by 'kunao<sub>1</sub>' (move) which (quite characteristically) can appear in almost any category depending on a number of different factors. A more serious problem arises with 'kunao<sub>2</sub>' (move) which belongs together with a number of Vs implying motion without change-of-location - in particular (a) 'talandev<sub>TR</sub>-ome<sub>INTR</sub>' (oscillate), 'eorume' (sway), (b) 'skivo' (bend), 'verno' (lean) and (c) 'salevo<sub>INTR</sub>' (stir, move slightly). All these will normally block a 'journey' expression (as they are not change-of-location Vs); those in subset (a) pass I 'officially' but it is almost impossible to decide whether we are dealing with 'continuous' and 'homogeneous' motion, or with iteration. Neither 'salevo<sub>INTR</sub>' (stir), nor 'kunao<sub>TR</sub>' (move) allow for an iterative understanding in II environments, unlike the verbs of subset (a). These last verbs resemble the ones already mentioned at the beginning of these comments: 'anakatevo' (stir, toss), 'anataraso' (stir up, shake) and 'tarakunao' (shake up) which pass both I and II, but for which it is once again difficult to decide whether 'continuity' or 'iteration' is implied. Hence the main reason for classifying only 'talandev<sub>TR</sub>' (oscillate) and 'eorume' (sway) under E is that they clearly involve a regular type of motion, so that the 'iteration' interpretation seems more natural.

10. Notice, that *'petao<sub>2</sub>'* (throw) will accept a 'journey' expression (from NP<sub>LOC</sub> to NP<sub>LOC</sub>) but the time expression following it counts the time which follows the act of throwing.
11. These Vs (*'xorevo'*, *'xoropiðao'*, *'kiljeme'*) are incompatible with either a goal or a 'journey' expression, but this does not affect the issue at hand and will be therefore disregarded here.
12. It has seemed better to consider *'gremizo'* (pull down) separately. 'Nature of theme' is again at issue, though in a sense different from the 'mass' vs 'count' noun distinction. Notice the difference between (a) and (b) below. Example (a):

- (a) *gremizo to spiti epi ðio meres*  
 I am pulling down the house for two days  
 I have been pulling the house down for two days

involves clearly a C category verb, while (b):

- (b) \**gremizo ton anθropo apo tin korifi tu lofu epi ðio lepta*  
 I 'throw down' the man from the top of the hill for two minutes

shows that we are in the area of category F verbs. Naturally, (b) would be acceptable if the durative expression were absent. The difference between the (a) and (b) occurrences of *'gremizo'* seems to lie in the nature of the theme; the different understandings of the two motions involved can be viewed as a contingent fact, i.e. as depending on the type of object undergoing *'gremizo'*. Positing two different verbs seems rather unwarranted. The verb appears in category C rather than F simply because the use exemplified in (a) is much commoner than the one exemplified in (b).

13. The crucial factor for the extreme 'event-like' nature of these Vs seems to be 'specification of source'.

14. Notice that 'οδιγο<sub>1</sub>' (drive, e.g. a car) and 'οδιγο<sub>2</sub>' (lead s.o. s.wh.) are understood here as different verbs although they are obviously related, otherwise 'οδιγο<sub>1</sub>' would not have been included.
  
15. The case of 'γλίστραο' is different. For the moment, the two main interpretations of the verb are marked as 'γλίστραο<sub>1</sub>' (slip) and 'γλίστραο<sub>2</sub>' (slide). It will be shown (on the basis of the test results discussed in Chapter 5) that there is good reason to believe that 'slip' is by far the most immediate interpretation.

## Notes on Chapter 2

1. The only apparent exceptions to this are wishes expressed in the form of an Imperative, e.g. Sleep well or Have a nice time.
2. The only method I am not prepared to discuss is defining HAPPEN on the basis of the 'state-process-event' distinction and then using it for further testing other verbs, as I find it rather circular.
3. None of these accounts of MG aspect seems to take notice of Comrie's distinction between 'complete' and 'completed', but as it seems an important one it will be presented here in full:

"A very frequent characterisation of perfectivity is that it indicates a completed action. One should note that the word at issue in this definition is 'completed', not 'complete': despite the formal similarity between the two words, there is an important semantic distinction which turns out to be crucial in discussing aspect. The perfective does indeed denote a complete situation, with beginning, middle, and end. The use of 'completed', however, puts too much emphasis on the termination of the situation, whereas the use of the perfective puts no more emphasis, necessarily, on the end of a situation than on any other part of the situation, rather all parts of the situation are presented as a single whole." (Comrie 1976:18)

4. A reasonable interpretation of the status of such verbs is that adopted by Comrie for 'sit' namely that it can in general be either stative ("be sitting") or 'ingressive' ("adopt a sitting position") (1976:20).

### 3. THE 'CAUSATIVITY - AGENTIVITY' CATEGORIZATION AND ITS APPLICATION TO MOTION VERBS

#### 3.1 How separate can the notions of 'causativity' and 'agentivity' be kept?

Despite years of philosophical and linguistic work on causativity major problems relating to this issue remain unsolved. This analysis does not purport to tackle them. But 'cause' being undoubtedly one of the main classifying semantic features for verbs, it has to be examined in detail in an analysis of a verbal domain such as that of MGMVs.

In order to investigate the behaviour of MGMVs in relation to the properties in question, i.e. causativity and agentivity, a number of issues have to be discussed:

- the extent to which the notions of 'causativity' and 'agentivity' can be kept separate;
- the relation of causativity to transitivity and the notion of 'patient';
- the relation of agentivity to the distinction between direct and indirect causatives.

Two categorizations of MGMVs will be attempted, one on the basis of causativity at the end of the first section and a separate one on the basis of agentivity at the end of the final section. These categorizations require a prior clarification of the notions of 'cause' and 'effect' and an understanding of 'agentivity' as a cluster of properties (rather than as a single feature). It will be shown that just as for the S-P-E distinction (discussed in the

previous chapter), whole predications will have to be examined for presence or absence of the relative properties and that individual verbs can be called 'agentive' to a greater or lesser extent (i.e. that presence or absence of this property is not a yes-no question). Although causativity seems to be more obviously a yes-no matter, the possibility that it, too, might have a gradient nature seems worth investigating.

Probably one of the least controversial and most concise accounts of a causative construction is that offered in Shibatani (1976a:239-40). Causativity is stated as a relation between two events which holds if the following conditions are satisfied:

- "a. The relation between the two events is such that the speaker believes that the occurrence of one event, the 'caused event', has been realized at  $t_2$  which is after  $t_1$ , the time of the 'causing event'.
- b. The relation between the causing and the caused event is such that the speaker believes that the occurrence of the caused event is wholly dependent on the occurrence of the causing event; the dependency of the two events here must be to the extent that it allows the speaker to entertain a counterfactual inference that the caused event wouldn't have taken place at that particular time if the causing event hadn't taken place, provided that all else had remained the same."

This is entirely in keeping with the common philosophical view that in order to assert that an object's actions caused some event to happen, a speaker must believe that the event happened and that it would not have happened on that particular occasion if the object had not acted and all else had been the same (cf. also Stalnaker 1968, Dowty 1972a, Miller and Johnson-Laird 1976).

This is perhaps as far as agreement on this issue goes. The relationship between causativity and agentivity is philosophically controversial and linguistic discussions of causative verbs ignore the distinction between causers and agents in practice, even when they recognize its existence in theory. Before providing specific

examples of this claim it is worth digressing briefly to look for an explanation of the confusion.

It is often assumed that the perceptual mechanism for causation is innate and that visual causation provides the point of origin for later conceptual refinements. Miller and Johnson-Laird (1976:489 ff.) consider also the possibility that the perceptual predicate CAUSE may originate with the intentional movements of the child, generalize to other persons and finally to inanimate objects. Lyons (1977:482 ff., drawing on Piaget) accepts a similar account of the child's conception of causality originating in action. If this is the case, the concept of causation may be the result of fairly long-lasting cognitive development along the lines already mentioned: 'ego' is replaced by 'person'; other people's intentions are inferred through their perceived behaviour; and the end of this process is the average adult's notion of intention and the related notions of animacy and agency. If cause and intention are so closely related ontogenetically we have an explanation for the confusion between causativity and agentivity, since there has never been any doubt that intentionality is at least one of the main properties of an agent (and on most accounts it is understood as an agent's sole property).

Be that as it may, it is also well known that although it takes at least ten years for an average child to get his/her ideas about causation and animacy sorted out, s/he is a competent speaker of his/her language long before this is accomplished (Miller and Johnson-Laird 1976:491). The fact also that agents are interchangeable with other kinds of causers (e.g. The umpire stopped play or Rain stopped play) is brought as evidence for the existence of a "natural and perhaps universal tendency to identify causality with agency" (Lyons 1977:490).

In short, collapsing the notions of agentivity and causativity is, to some extent, justifiable. It seems, however, that a clear understanding of the points at which they intersect and those at which they are distinct is necessary before any attempt at categorizing verbs along these dimensions is made. In particular it

is important to recognize that causativity hinges on the result (effect) or the situation of the recipient of an action, not on the qualities of the causing event as such. The extent to which the causing event involves an agent, i.e. an animate, volitional, responsible entity who is in control of the situation and has authority over it will be decisive in considerations of the 'agentivity' of a predication (and finally of the verb it involves). Although these observations are not contradicted in theory in any analysis that I know of, it can be shown that specific categorizations of predications (and verbs) in relation to these basic properties conflate them in practice and are consequently more confusing than illuminating. The clearest examples of this conflation are probably Lyons (1977) and Miller and Johnson-Laird (1976) as both works provide excellent theoretical accounts of the relevant notions and relations. They will be therefore considered here in some detail.

Lyons' (1977:491-4) categorization of verbs in relation to causativity results in a tripartite division into 'factitive', 'operative' and 'operative-factitive' verbs. In his system 'factitive' verbs are said to denote a situation where a cause produces an effect:

(a) PRODUCE (CAUSE, EFFECT)

'Operative' verbs are said to denote an operation performed by an agent and affecting a patient:

(b) AFFECT (AGENT, PATIENT)

'Operative-factitive' verbs are characterized by a combination of the elements appearing in (a) and (b):

(c) PRODUCE (AGENT, EFFECT)

All three schemata are said to be relevant in "paradigm instances of agentive situations (i.e. those in which the action results in a change in the physical condition or location of the patient)" (ibid.:491). A distinction is drawn, however, between instances of 'kill' where the cause is a first-order nominal (John killed Bill) and those where it is a second-order nominal (Excessive drinking killed Bill). In the former case 'kill' is understood as closer to (c) while in the latter it is a 'factitive' verb, i.e. it relates directly to (a). Finally, since the proposition expressed by 'x killed y' can also be understood as saying that x did something to y "it can be understood as an instance of AFFECT (AGENT, PATIENT)" (ibid.:492), i.e. 'kill' can be also an 'operative' verb. This sort of categorization results in two distinct understandings of 'kill': an agentive one corresponding to (b) and (c) and a non-agentive interpretation corresponding to (a). Besides, in so far as affecting a patient is not equivalent to producing an effect, an agentive but non-factitive understanding is also predicted as a possibility for 'kill'. It seems to me that the facts in connection with 'kill', causativity and agentivity can be accounted for in a simpler way, provided the two notions are kept separate. What we know to be true of all instances of 'kill' is that it is a causative verb. He was killed in a bomb explosion and He was killed during the last earthquake involve perfectly literal instances of 'kill'. An external cause is unequivocally required (unlike in the case of 'die', for instance). In this respect, i.e. in anything that concerns causativity, both examples belong together with John killed Bill where unlike either a genuine agent is involved. Therefore, 'kill' is undoubtedly a causative, but it is not equally certain that it is also 'completely' agentive, since it does not necessarily require an animate volitional causer, being responsible for the situation, having authority and control over it. Such factors (which will be discussed separately in the relevant section) have to be taken into consideration only in order to decide the extent to which 'kill' is an agentive verb and it is easy to see that it will not feature at the top of an agentivity scale, unlike a verb such as 'murder', for instance.

It looks as if a tripartite categorization is at the same time both redundant and insufficient to account for the facts of 'kill'. For, besides the examples already discussed, the same verb may receive additional interpretations in cases like: John killed Bill by accident and John killed Bill in order to steal his cocaine. None of these interpretations hinges on the effect, the result of the causing event, i.e. none of them affects the 'causativity' issue. They all bear on the extent to which the causer is an agent, i.e. they all depend on properties of the causing event and affect the 'agentivity' issue.

Consider also the case of 'hit' and Lyons' explanation of why the verb is not 'operative-factitive'. His specific example is John hit Bill and the explanation is worth looking into rather carefully:

"we can, of course, say that in so far as some change is wrought in the condition of Bill, John's action results in a new state. But English does not provide us with a monovalent predicator denoting such states" (ibid.:492).

This means that while in the case of 'kill' there exists an intransitive verb 'die' which refers to the result brought about, no such intransitive verb exists in the case of 'hit'. Therefore, for Lyons 'effect' equals 'lexicalized new state' and consequently 'absence of lexicalized new state' implies 'no effect'. In short, 'hit' is not 'operative-factitive' for the same reason that it is not just 'factitive' either, presumably (since 'factitives' also require that an effect be produced). What is 'hit' then? Lyons does not tell us how it is to be characterized, but we may attempt to call it an 'operative' verb. 'Operatives', however, involve a 'patient'. In an example like John hit the wall with his fist and hurt himself nothing happens to the wall. It is not therefore evident that the wall is indeed a <sup>prototypical</sup> 'patient'. Is it consequently true that we do not know anything about 'hit' in connection with agentivity and causativity? The answer is negative, because we do know that in both examples 'hit' is an agentive verb. The extent to which the subject possesses the relevant characteristics to qualify for an 'agent' can be worked out (in a specific way which will be presented later), but the fact remains that some of these relevant characteristics are

always present in all instances of 'hit'. It can be argued, of course, that 'patient' is to be defined as the entity which is on the receiving end of an action and in that case the wall in the 'hit the wall' example is a patient. Notice, however, that the crucial element once again is 'action'; if that notion is also absent we are saying nothing more about 'hit' than that it is a transitive verb and that is not much of a categorization. Clearly 'action' implies presence of an 'agent'. Hence, irrespective of the exact definition of 'patient', the decisive factor, which remains constant in the examples of 'hit' just discussed, is agentivity. A categorization which mixes up elements crucial for causativity and elements crucial for agentivity seems to miss the point.

In the case of MVs presence or absence of causativity seems to be a fairly straightforward matter, provided one sticks to the traditional notion of a causative, requiring causative verbs to be transitives, for a start. Motion verbs seen in this light would be causative if they describe the motion of an object which can be safely attributed to the interference (or action) of some other entity. This simple view is not as widely adopted in practice as one might have expected. Miller and Johnson-Laird's (1976) characterization of MVs with respect to causativity rests on an alternative view which seems to also add to the confusion of the notions of causativity and agentivity. On their account, if the moving object and the one responsible for its motion are one and the same, the verbs describing the motion in question are also understood as 'causatives'. Clearly these verbs are not transitives any longer but intransitives of motion; moreover the issue of coreferentiality (i.e. whether the moving object and the one responsible for its motion are one or not) can only be raised in those cases where the moving object is an agent. In the understanding of the proponents of this view, the moving object must in such cases be capable of voluntary action. As an illustration of this point, it is sufficient to notice that in the light of this approach The car rose is non-causative while John rose is vague. If John is also an agent (in the sense of voluntarily causing his own motion) the sentence receives a causative interpretation (along with an agentive one); if not, it receives a non-causative interpretation (along with the non-agentive one). How

is this conclusion arrived at? Within this system, causative verbs are understood as expressing a relation between two events, "the first of which is something that an agent does, the second an event that his action causes" (ibid.:475). This is precisely the point at which causativity and agentivity are conflated with what seem to me to be undesirable results. This assumption (i.e. that the causing event involves an agent) is used in order to distinguish between 'kill' which implies bringing about a change in the condition of its logical object and 'see' which does not imply any such thing. The distinction in question is related to causativity, not agentivity. So, invoking the latter notion as well, in trying to account for it, is rather misleading. The fact that 'see' does not qualify as a causative has nothing to do with the intentionality or non-intentionality of the event. Notice, at any rate, that even if it involves a volitional subject in a case such as He saw the film in order to decide for himself whether the new actor was any good, nothing changes concerning causativity: the film's condition remains the same.

These facts are too simple to have been overlooked by such a thorough analysis as the one under discussion. The question therefore arises as to the reason why Miller and Johnson-Laird (1976) opt for the alternative approach just mentioned. It seems to be the case that neat formalization lies behind their analysis. The most economic solution for causative/non-causative members of pairs is certainly the one which incorporates the intransitive schema into the transitive one and offers a single formula in the case of phonologically identical pairs, e.g. TURN ((x), y). The first argument (x) being optional in this formula, the schema allows both for causative and non-causative uses. Consequently, in the case of phonologically non-identical pairs, a similar method can be applied. Hence sentences such as He raised the car and The car rose are lumped together as describing "the same event" (ibid.:475). Since the motions described are precisely the same in both uses, Miller and Johnson-Laird postulate one sense of the verb. The causative component is said to appear when there is an agent at least implicitly present and to disappear when s/he is absent. But their diagnostic question for singling out causatives from non-causatives

"What properties of *y* are changed by *x*'s action" cannot be asked in the case of The car rose, they claim, "because the verb is intransitive". Now this is either false or in contradiction to their other claim that intransitives may well be causatives. Notice that a causative understanding is postulated both for The man rose and for Melissa travelled although the verbs involved are also intransitive. So in reality The car rose cannot be submitted to the diagnostic test because of a prior (unadmitted) recognition of the fact that the subject is inanimate and therefore no candidate for an agent (in their own understanding of the term at least). This being so, the question of coreferentiality cannot be raised as it is raised in the case of The man rose and Melissa travelled. It is this that is at issue and not intransitivity as is claimed. So in essence the difference between The car rose and The man rose is clearly a question of agentivity (i.e. properties of the subject-causer) and not causativity (i.e. properties/situation of the object of change).

The undesirable results of this approach consist in distinguishing between different interpretations of 'rise' (a causative and a non-causative one) for the sake (it seems to me) of bringing together 'raise' and 'rise' as causatives. Consider a case like Smoke rose from the chimney. There is clearly no corresponding transitive sentence \*Somebody raised smoke from the chimney. Neither does the possibility of vagueness exist as it does in the case of The man rose. Since smoke is incapable of "voluntary action" the question of coreferentiality cannot be raised. If we adhere strictly to the principles of Miller and Johnson-Laird we can only conclude that we are faced with a third kind of 'rise' this time. This solution seems more counter-intuitive than distinguishing between a causative 'raise', and a non-causative 'rise', the relation between which cannot rest on considerations bearing on agentivity. Different interpretations of 'rise' which depend on the sort of subjects it can accept ('the car', 'the man', 'smoke', etc.) need to be investigated separately to discover where the verb stands as to agentivity. The relation between 'raise' and 'rise' constitutes an important problem which requires special attention but it is a problem of causativity and cannot be solved by reference to the properties of the causing event and the extent to which it involves a genuine agent.

I have argued so far that causativity and agentivity can be considered separately to some extent. This can be effected if causativity is understood as centring around the question of whether something that happens (event or process) is due to some external intervention or not, i.e. is brought about by an external cause. Approaches attributing a causative component to sentences like Melissa travelled on the grounds that "she did something that caused herself to move" (Miller and Johnson-Laird 1976:544) are here considered inappropriate as blurring the distinction between causativity and agentivity. Melissa using her own forces to travel can be hardly called an 'external' factor, so the verb in question is no candidate for a causative. The suggestion made here is that causativity depends crucially on 'patientivity' of the object rather than agentivity of the subject, i.e. on the effect rather than the nature of the cause. Therefore the degree of agentivity of the causer is not directly decisive in characterizing a situation as more or less typically causative. Nevertheless, the notion of agentivity plays a role in the distinction between direct and indirect causatives in the sense that the degree of patientivity of the causee is to some extent (or in certain cases) relatable to the degree of agentivity of the causer. These claims will be discussed in detail following an account of the relevant notions: the notion of 'agent', the notion of 'transitivity' and the distinction between direct and indirect causatives.

The main idea underlying all this discussion is that causativity can be linked with agentivity through gradation. The assumption is made that manipulative/direct causation (e.g. Marietta put the book on the shelf) is the central, most characteristic causative situation. In such a case the causer constitutes the only factor responsible for the change-of-location of the causee, hence the causee has no active role at all to play in the caused situation, i.e. the causee is a typical patient. In this sense the patientivity of the causee can be considered a function of the agentivity of the causer. But even direct causation does not necessarily imply that the agent is the most typical one. Animacy and volition which are generally understood as the characteristics of a genuine agent need not be present (e.g. The earthquake pulled down the house). On the other

hand, indirect causation (e.g. The gaoler marched the prisoners) reflects situations where the causer is attributed responsibility for the caused event, yet the causee also participates actively in it, i.e. s/he is no typical patient. Evidently, the mere fact that the patient is less-than-typical indicates that the causer is also less-than-typical; for if the caused event requires the active participation of the causee as well, the causer cannot be said to be in absolute control of the situation. Yet even in the case of indirect causation, the causer possesses (almost necessarily) the properties of animacy (s/he is actually human in most cases) and volition. Once again there is no one-to-one correspondence between the properties of the causer and those of the causee. This brief outline of the main facts of direct and indirect causatives and their relation to agentivity (which simply foreshadows a detailed account of these relationships) is meant to show a possible point of intersection of the notions of agentivity and causativity and to indicate that for a clearer understanding of these problems we need a reconsideration of the notion of 'agent'.

The other point of intersection of agentivity and causativity is transitivity (as already mentioned). Transitivity is also understood here as a graded phenomenon involving more and less typical instances rather than a strict dichotomous division between transitive and non-transitive events. In this understanding transitivity is not a formal syntactic category but has specific semantic content relatable, on the one hand, to the degree of agentivity of the subject and, on the other, to the degree of patientivity of the object. Therefore it can only be discussed following a clarification of the notion of agent. The extent, however, to which it is correct to claim that a categorization of causatives does not necessitate recourse to the notion of agentivity will be discussed in what follows immediately, namely an account of MG causatives of motion.

### 3.2 Identifying Modern Greek causatives of motion

Within the area under investigation it seems relatively easy to identify those verbs which are causatives provided one accepts the

traditional link between causatives and transitives, i.e. the requirement that for something to qualify as a causative it must at least be a transitive verb. As already noted in the previous section, causatives of motion are here understood as describing a change-of-location/position explicitly attributed to external intervention. The prerequisite can be therefore stated in very simple terms: causatives of motion are expected to give rise to a contradiction if they appear in a sentence of the form 'x Ved y but y did not move'. Three main points have to be discussed at this stage:

- whether the lexicalization of the resulting state (position) of the object which is caused to move plays a role in identifying causatives of motion;
- whether there is any evidence for claiming that the intransitive (non-causative) or the causative it corresponds to is more basic (in those cases obviously where such a correspondence can be established), i.e. whether there is reason to believe that one is derived from the other;
- whether we can talk about relative prominence of the causative element in certain verbs (or sets of verbs) and if so what is the nature of the phenomenon.

As was pointed out in the previous section, Lyons (1977) suggests that if a verb implies that an effect is unequivocally brought about, i.e. if it is a clear case of a causative (in my understanding), this effect must lexicalize. The validity of this observation for all causatives implying a change-of-condition of their object cannot be tested here. It is worth, however, examining whether such a requirement is at all necessary in the case of the MGMVs which are here tentatively posited as causatives of motion.

Four groups of transitive MGMVs can be distinguished on the basis of whether and how the change-of-location/position of the object lexicalizes. Those most easily identifiable as causatives are perhaps the ones which happen to have a phonologically identical

intransitive counterpart. In the field under consideration the category includes verbs such as:

- I. 'kilao<sub>2</sub>' (roll<sub>TR</sub>), 'plisiaz<sub>2</sub>' (approach<sub>TR</sub>), 'strivo<sub>2</sub>' (turn<sub>TR</sub>), 'virizo<sub>2</sub>' (turn<sub>TR</sub>), 'vuljaz<sub>2</sub>' (drown<sub>TR</sub>), 'akubao<sub>2</sub>' (make s.th. touch s.wh., put), 'vonatizo<sub>2</sub>' (make s.o. kneel), 'xamilon<sub>2</sub>' (lower<sub>TR</sub>), 'epistrefo<sub>2</sub>' (return<sub>TR</sub>), 'virizo piso<sub>2</sub>' (return<sub>TR</sub>), 'vlistrao<sub>2</sub>/tsulao<sub>2</sub>' (slip<sub>TR</sub>), 'piveno<sub>2</sub>' (take s.th. s.wh.), 'paramerizo<sub>2</sub>' (pull, put aside), 'kikloforo<sub>2</sub>' (put into circulation/circulate<sub>TR</sub>).

It must be pointed out that this group includes verbs which are very different semantically, accepting distinct kinds of causers and causees and describing a variety of motions. There is no uniformity as to the exact contribution of the causer/causing event. So the privileged status such 'double purpose' verbs are sometimes accorded in analyses of English causative/non-causative pairs of verbs cannot be accepted for MGMVs, at least, on the basis of semantic criteria. The reasons offered for English 'double purpose' verbs are not very clear-cut either. As a fairly straightforward example, consider the sort of sentences used in accounts of the character of sentence pronominalization:

- (1) John finally melted the metal but it took him years to bring it about.
- (2) \*John finally killed Mary but it took him years to bring it about.

Ignoring interpretations of the type John tried over and over again as irrelevant, the fact remains that: (1) is acceptable and (2) is not. Lakoff and Ross (1972) attempt an explanation of these facts along the following lines: the acceptability of (1) is attributed to the morphological relation between causative and intransitive verb (e.g. harden, melt etc.), while the unacceptability of (2) is claimed to be due to the fact that "the lexical item and the antecedent are not morphologically related" (p.122). Notice, however, that (3) is

acceptable while (4) is not, although the opposite facts hold in connection with 'phonological identity':

(3) John finally transported the trunks to Afganistan but it took him years to bring it about.

(4) ??John finally turned the switch left but it took him years to bring it about.

In short, even in English such phenomena are probably better accounted for in terms of the 'processual' or 'event' character of the predications in question rather than identity of form between causative and non-causative members of verb pairs. Be that as it may, no special semantic characteristics can be attributed to group I MGMVs. All that can be safely said about them is that their meaning can be most directly computable on the basis of the meaning of their intransitive counterparts plus a causative element (in its broadest understanding). In the case of MG this fact is not devoid of any serious implication. There is fairly strong evidence that such causatives are derived from their intransitive counterparts which can therefore be considered more basic (in this respect). In recent years a great number of new causatives have emerged (especially in the speech of the younger generation) which correspond to already existing intransitives. So, parallel to colloquial expressions in current use for many years, e.g. '*ton peθane*' (s/he 'died' him, i.e. s/he made him die), new expressions are now used, e.g. '*na to kataliksume to θema*' (let us 'conclude' the issue, i.e. let us bring the issue to an end and reach a conclusion). This expression was heard with some surprise two years ago in a students-staff meeting at Athens University but was immediately interpreted in the way it was meant to be and has by now become quite 'standardized'. In short, there is reason to believe that in the case of 'double purpose' MG Vs there is a process involved in the derivation of the causatives and that this process is, moreover, quite productive. So, in this particular case it makes sense to posit the intransitive as the basic form and mark in the lexicon those intransitives which undergo the process of being used also as causatives. More evidence in this



characteristics can be added to this group, for which no intransitive counterpart exists (with the same properties as those of the verbs presented under II), such as 'vazo' (put) and 'bizo' (stick (in)). The resulting position of the object can lexicalize in the case of 'vazo' within a state predication which makes no reference whatsoever to the preceding/causing event. This is effected through monovalent predicators which have no causative counterpart and are morphologically completely unrelated to 'vazo', namely 'ime' (be) and 'vriskome' (be found), e.g. (6a) can only 'result' in (6b):

(6a) *evala ta vivlia sto trapezi* (V=vazo)  
I put the books on the table

(6b) *ta vivlia ine/vriskonde sto trapezi* (V=ime/vriskome)  
the books are (found) on the table

In those cases where 'vazo' (put) is followed by a PP involving 'inside something' the verb can 'borrow' from 'bazo' (put in) a monovalent predicator referring to the event of the object's change-of-location, e.g. (7a) implies (7b):

(7a) *evala to vivlio sto sirtari* (V=vazo)  
I put the book in the drawer

(7b) *to vivlio bike sto sirtari* (V=beno)  
the book went-in the drawer

This can be interpreted as implying that the reason why 'vazo' (put) does not have a lexicalized monovalent predicator as 'anevazo' (take up) and the other verbs of group II have, is precisely the semantic fact that, as a cover term of those verbs, it does not specify how the motion is effected with relation to the resulting position of the moving object. This possibility cannot be ruled out. It is of no great importance, however, because 'bizo' (stick (in)) which is at least as specific as 'bazo' (put in) does not have an intransitive counterpart similar to those of group II verbs either. The

conclusion that lexicalization of the change-of-location/position is again arbitrary seems inescapable. In any case, the causative character of both 'vazo' and 'bizo' (lacking a corresponding monovalent predicator) cannot be disputed, and neither can their close morphological and semantic relationship with the causative verbs of group II. Yet no uniform explanation can be found for the presence (or absence) in this subfield of a monovalent predicator lexicalizing the change-of-location. Besides, there seems to be no ground for establishing the intransitive rather than the transitive as more basic in the case of these verbs; so we can only assume that the question of deriving one from the other cannot be raised.

A third category of MG causatives of motion can be identified on morphological grounds. It comprises verbs which may be said to have a corresponding monovalent predicator which is mediopassive in form, i.e. ending in '-ome'. It is easy to find examples of this category but very difficult to decide which verbs are genuine members and which are not, the reason being that for a large number of '-ome' verbs of motion, at least, it is not in the least clear whether they are passive or not. The whole issue is of great importance for causativity and agentivity. Therefore '-ome' verbs are given special attention in a subsequent section. For the moment, a few verbs will be presented as examples of what I consider group III here in order to see how they compare to verbs in other groups, always in relation to the questions of lexicalization and derivation.

III. 'sikono' (raise) corresponding to 'sikonome' (rise), 'apomakrino' (remove, move away<sub>TR</sub>) corresponding to 'apomakrinome' (move away<sub>INTR</sub>), 'tinazo' (shake up<sub>TR</sub>) corresponding to 'tinazome' ('shake up'<sub>INTR</sub>, be shaken up), 'viθizo' (drown<sub>TR</sub>, sink, immerse in water) corresponding to 'viθizome' (drown<sub>INTR</sub>, sink), 'gremizo' (pull down) corresponding to 'gremizome' (fall down (a precipice)), 'xono' (stick(in)), corresponding to 'xonome' (be stuck/engulfed in), 'kaθizo' (make s.o. sit) corresponding to 'kaθome<sub>1</sub>' (sit, be seated), etc.

The semantic relation of verbs in this group to those of other groups is rather evident. Notice, for instance, the relation of 'sikono' (raise) to 'anevazo' (take up), 'xono' (stick (in)) to 'bizo' (stick(in)), 'viθizo' (sink, drown) to 'vuljazo' (sink, drown), 'kaθizo' (make s.o. sit) to 'yonatizo<sub>2</sub>' (make s.o. kneel) and 'apomakrino' (move away) to 'paramerizo' (pull, put aside). They differ from one another in the sorts of causers and causees they accept and the exact involvement of the causer. Notice, however, that such differences appear both within each group and across groups, so once again the type of lexicalization of the change-of-location does not appear to have any semantic significance. Besides, whether they have a more or less indisputably intransitive '-ome' counterpart (e.g. 'sikono' (raise)) or are only related to a passive '-ome' verb (which does not normally count as 'lexicalized effect'), they always entail that their direct object changes location owing to external intervention and therefore pass the test for causatives. Finally, although '-ome' intransitives can be etymologically analysed as 'reflexives', there is no evidence for postulating the causative forms as more basic. Synchronically, the process of 'reflexivization' is productively effected through completely different means (i.e. addition of the prefix 'afto-') and does not concern the verbs in question.

IV. The fourth group of verbs is understood here as involving causatives which either have a counterpart completely unrelated to them in form, or no counterpart at all. This is a rather different case from those discussed so far. In the absence of morphological relations it is not equally easy to tell what the new state of affairs (the changed location/position) actually involves. It is therefore worth investigating: (a) whether specific correspondences can be established for some verbs and (b) whether absence of such a correspondence affects the causative character of the verbs in question.

Certain correspondences are fairly easy to establish. A case in point is the pair 'ferno' (bring) - 'erxome' (come). The similarity of this pair to 'pivenc<sub>2</sub>' (take s.th. s.wh.) - 'piveno<sub>1</sub>' (go) is too obvious to require elaboration. Other cases such as that of 'stelno'

(send) and 'petao/rixno' (throw) are more problematic and should be considered in some detail.

In certain examples 'stelno' (send) may be said to entail 'ftano' (arrive), while in others this correspondence is not valid:

(8a) \**estile ti bala sta õixtja, ala i bala ðen eftase eki*  
s/he sent the ball to the goal-post, but the ball did  
not arrive/get there

(8b) *estile ena yrama sti yermania, ala to yrama ðen eftase*  
*(eki)*  
s/he sent a letter to Germany, but the letter did not  
get/arrive (there).

Apparently what 'stelno' necessarily implies is that the object is caused to start travelling (i.e. leave the place it used to hold) hence the unacceptability of (8c):

(8c) \**estila ena yrama sti yermania ala ine akomi sto sirtari mu*  
I sent a letter to Germany but it is still in my drawer

What it does not imply is that the goal intended by the causer is reached, hence the acceptability of (8b). The unacceptability of (8a) can be explained if one considers that the journey involved is so short that the observer would be expected to take in the whole of it rather than just the beginning. In this respect 'stelno' (send) is not unlike verbs such as 'petao<sub>2</sub>' (throw) or 'ektoksevo' (hurl) which have a similar restriction. The object is caused to travel (through the air in these latter cases) but its resulting position will only lexicalize under certain conditions. The nature of these conditions has to be examined in order to see whether it can be related to the issue of relative salience/prominence of the causative element. Similarly to 'stelno' (send), 'petao<sub>2</sub>' (throw) and 'rixno' (throw) may be seen as partially entailing 'pefto' (fall), on the basis of examples such as (9a):

- (9a) \**petakse/erikse to kuti sto patoma, ala to kuti ðen epese sto patoma*  
s/he threw the box to the floor, but the box did not fall on the floor.

It might seem at first sight that the crucial difference between 'throw' and 'fall' is that the latter necessarily involves downward motion unlike the former, hence the correspondence is restricted to those cases where this condition is also met by 'throw'. Notice, however, that although this is true to some extent, a specification of the goal (reached and maintained by the moving object) is perhaps equally important with respect to the facts of MG '*petao/rixno*' and '*pefto*' at least. So (9b) is also unacceptable for the same reason that (9a) is, although the motion described is not downward:

- (9b) \**erikse to aftokinito sto ðendro, ala to aftokinito ðen epese sto ðendro*  
s/he 'threw' the car on the tree, but the car did not fall on the tree  
s/he crashed the car into the tree, but the car did not hit the tree.

If the direction of the moving object is upward, e.g.:

- (9c) *erikse ti bala psila/sti steyi*  
s/he threw the ball high/to the roof

the conditions of 'goal specification' and 'downward direction' coincide in the sense that gravity will also determine the new and final position of the moving object. Therefore in (9c) '*psila*' (high) will not allow a lexicalization with '*pefto*' (fall) while '*sti steyi*' (to the roof) will.

The facts of English 'throw' are not dissimilar to those just presented for '*petao<sub>2</sub>*' and '*rixno*', so it is worth looking closely at an analysis of 'throw' which draws a line between (10a) and (10b) in

terms of the relative prominence of the feature of motion (Ikegami 1969:89):

(10a) He threw the ball skillfully

(10b) He threw the ball over the fence.

The former sentence is analysed as "make a certain movement of the arm + in order to cause something to go through the air" and the latter as "cause something to go through the air" + "by making a certain movement of the arm". Ikegami's view is that the difference between uses such as that of (10a) and the one in (10b) lies in the relative prominence of "the feature of motion" in connection with this verb. Hence he categorizes such verbs as being "situated on the fringe of the category of verbs of motion" (p.90). It seems to me that the difference between the two examples offered by Ikegami might become clearer if a third common use of 'throw' is juxtaposed to them; in particular, one which specifies the goal of the motion even more precisely than (10b) and can imply that the new position (goal reached) is preserved. Consider therefore the example:

(11) He threw the ball to the tree.

This, I suggest, may be more directly understood as implying (among other things) 'he caused the ball to fall on/at the tree' and allows for the possibility that the object stayed at its new location. Now (10b) may be also understood as implying 'he caused the ball to fall at a place which was at the other side of the fence'. Sentence (10a) is still one step further than (10b) in that the goal of the object's journey is completely unspecified. This seems to be the crucial difference with the remaining examples. To what extent is it therefore true to say that for 'throw' "the non-causative interpretation is the more usual one" as Ikegami does? (1969:105). On the basis of the examples discussed it seems to be the case that two implications remain constant: (a) the object is caused to travel through the air (b) it receives impetus by the causer. The condition of motion is always prominent (contrary to Ikegami's claims) and the

condition of causativity is always present. If the goal is not specified or not reached the resulting location of the object is not registered and the change-of-location does not lexicalize through a specific intransitive. This does not render the causative element less prominent. On such intuitive grounds the exact opposite could also be claimed, namely that the contribution of the causer is more crucial; in a way, all we know about the event in question is that some object is caused to travel by some external source of motion. It seems, however, that the relative prominence of the causer/causing event cannot be discussed on the basis of such considerations. Factors such as perceivability of the causer, degree of involvement of the causer (in the process/event caused), accompaniment, etc., seem to be much more relevant than presence or absence of lexicalized effect. As already pointed out, such factors, which bear on the nature of the causer rather than the effect, are best discussed in connection with agentivity and will be taken up later. For the moment, all that can be said on the basis of the cases discussed so far is that there is no evidence:

- that the lexicalization of the change-of-location/position of the object plays a role in identifying causatives of motion;
- that either the causative or the non-causative verb is more basic except in the case of phonologically identical pairs.

On the other hand, relative prominence of the causative element requires recourse to the notion of agentivity. This is therefore posited as a point of intersection of the notions of causativity and agentivity.

### 3.2.1 Non-causative transitives

In the specific area under investigation there are two categories of transitives which are not causatives. Both categories describe a situation where an entity  $x$  moves in relation to some other entity  $y$

which is either not moving (usually expressed through a NP of Location) or moving but not necessarily at the instigation of x.

The first one comprises cases such as:

- I. (a) *'plisiazō tin poli'* (approach the city)  
(b) *'d̄iasxizō tin pl̄atia'* (cross the square)  
(c) *'d̄javēno ton potamo'* (cross the river)  
(d) *'pernaō to d̄romo'* (cross the road)  
(e) *'prospernaō to maγazi'* (pass (by) the shop)  
(f) *'skarfalono to vuno'* (climb the mountain)  
(g) *'strivo ti vonia'* (turn (at/round) the corner)  
(h) *'pīd̄ao to fraxti'* (jump (over) the fence)  
(i) *'aneveno ti skala'* (go up the ladder)  
(j) *'kateveno to potami'* (go down the river)  
(k) *'perpatao mja apostasi/20 xiljometra'* (walk a distance/20km)  
(l) *'trexo mja apostasi/20 xiljometra'* (run a distance/20km)  
(m) *'kolibao mja apostasi/20 xiljometra'* (swim a distance/20km)  
(n) *'taksīdevo ton kosmo'* (travel (around) the world).

These can be regarded as intransitive verbs which under certain circumstances - such as the ones exemplified above - become transitives with an NP of location as their direct object. They cannot imply that this object is caused to move; only the subject is moving. Notice, however, that *'plisiazō<sub>2</sub>'* (approach<sub>TR</sub>) can be a causative in cases like *'plisiazō tin karekla sto trapezi'* (I 'approach' the chair to the table, i.e. I move the chair near the table). Rather predictably there are no passive constructions equivalent to examples (a) to (n) since the object NPs are not affected by the action of the subject. This does <sup>not</sup> mean, however, that there are no mediopassive forms corresponding to the verbs in question. It is important to notice, though, that under certain circumstances, for some of these verbs, passive constructions are possible, although the verbs are still non-causatives of motion, e.g.:

(e') *i volvo prosperastike apo ena fiat* (V=*prospernjeme*)  
the Volvo was overtaken by a Fiat.

Notice also that although (12a) does not have a corresponding (12b):

(12a) *o janis etrekse ekxi milja* (V=*trexo*)  
John ran six miles

(12b) \**trextikan ekxi milja apo ton jani* (V=*trexome*)  
six miles were run by John

the mediopassive form of the same verb (i.e. '*trexome*') is possible in cases like the one exemplified in (13):

(13) *trexete afti i apostasi?*  
is-it-run this distance?  
is it possible to run this distance?

On the basis of such data it becomes obvious that the relations between constructions such as (13), transitive causative constructions, and transitive non-causative ones have to be examined more carefully, and that passivizability can be used as a tool in this investigation. Factors such as 'degree of affectedness of the object of a transitive construction' play an important role in whether a certain transitive verb can have a corresponding passive in MG. Presence or absence of causativity cannot solve such problems by itself and although in most cases it is easy to determine (within the field under investigation) whether a verb is causative or not, marginal cases also exist as will become obvious in what follows.

The second category of non-causative transitives of motion comprises verbs such as:

II. '*kiniyao*' (hunt), '*akoluθo*' (follow), '*kataðioko*' (chase),  
'*sinoðevo*' (accompany), '*oðiyo*' (lead).

In a sentence like (14):

- (14) *to peði sinoðefse tus proskopus stin korifi* (V=sinoðevo)  
*tu lofu*  
the child accompanied the boy scouts to the top  
of the hill

it cannot be claimed that the subject is the causer of the direct object's change-of-location. There is no indication that the event would not have taken place without the subject's intervention. A case like (15) seems, however, more problematic:

- (15) *i astinomia kataðioke ton klefti apo xorjo* (V=kataðioko)  
*se xorjo*  
the police chased the thief from village  
to village

Probably the most immediate interpretation of this sentence would be that the thief's continuous change-of-location ('from one village to the next') is due to the chasing of the police: if the police were not after him, the thief might not have moved at all. Notice, however, that the change-of-location described by the PP in question does not necessarily refer to the thief's movements but rather to those of the police. Hence (16) is by no means an unnatural sentence (although it does not involve the most prototypical understanding of the verb in question):

- (16) *i astinomia kataðioke ton klefti pu* (V=kataðioko)  
*krivotan se mja spilja*  
the police were chasing the thief who  
was hiding in a cave.

Notice, further, that the object of chasing need not even be aware of the fact that s/he is being chased. It can be therefore said that the verb is mainly descriptive of the subject's motion and especially of his/her intentions. In this sense it is not considered here a

causative of motion, although the possibility that it may function as one is not ruled out.

The least clear case in category II is actually 'οδιγο' (lead). Consider sentence (17a):

(17a) *to peði me oðiyise sto spiti tu jani* (V=οδιγο)  
the child led me to John's house.

This sentence necessarily entails:

(17b) *piya/eftasa sto spiti tu jani* (V=piyeno)  
I went to/arrived at John's house.

It seems once again that the verb describes mainly the subject's action, although the object's motion may well be attributed to this action. Consider for instance (18):

(18) *o xorikos oðiyise to aloyo sto xorafi* (V=οδιγο)  
the peasant led the horse to the field.

Sentence (18) seems quite similar to (19) containing an indisputably causative verb:

(19) *o xorikos piye to aloyo sto xorafi* (V=piyeno)  
the peasant took the horse to the field.

The main difference between the two last sentences is that the former specifies quite explicitly that the animal was using its self-moving mechanism to change location in the direction indicated by the person leading it, while the latter may also be understood as implying that the horse was carried to the field on something else which was moving (e.g. a vehicle). Hence although 'οδιγο' (lead) is not immediately understood as 'causing somebody's motion', this possibility cannot be ruled out either. The main considerations that go into such a

decision verge on who is responsible for the motion, i.e. who has the initiative for the object's motion. Such properties I regard as mainly linked with the issue of agentivity. I therefore consider that a proper understanding of an in between case like 'οδιγο' and of direct versus indirect causatives requires a better understanding of agentivity.

### 3.3 Agentivity as a cluster of properties

Surveys of work on agentivity (e.g. Cruse 1973, Morley 1983) have tended to concentrate on differences between the various accounts, thereby implying that what they have in common is unproblematic. However, for the purposes of the present analysis, at least, certain of the generally accepted views need to be reviewed.

Fillmore (1968b:24) defines the agentive case as that of the "typically animate perceived instigator of the action identified by the verb". Gruber (1976:165) identifies agentive verbs as those "necessitating an Animate willful subject". Ross (1972) and Dowty (1972b) have action verbs involving two-place predicates where the first argument is an agent characterized by intention (Ross) and by intention and volition (Dowty). The same point is in essence taken up by Jackendoff (1976) where the agent fills up the first argument position of a volitional predicate CAUSE. The agreement on this issue of proponents of widely different theories is rather striking. The tests typically used to identify agents or agentive verbs involve, equally commonly, manner adverbials specifying 'purpose' such as 'carefully', 'deliberately', 'eagerly', 'attentively' which are referred to here as 'purposive Advs'. Besides these, the D0-S0 test is used for English, which need not be discussed as it is convincingly proven by Langacker (1975) to be rather controversial.

The consequence of such a narrow 'yes or no' understanding of the notions of 'agent' and 'agentive verb' seems to be lumping together verbs which can be shown to differ significantly with respect to this property. Since we are only concerned with motion verbs here, Gruber

(1976) and Miller and Johnson-Laird's (1976) examples will be given special attention.

Gruber's examples of cases where the theme can be identified as agent involve:

(20) John went into the room

(21) John rolled down the hill

(22) John floated across the lake.

These are juxtaposed to (23), meant as an illustration of the impossibility of having an agent in the case of inanimate entities (as subjects):

(23) The log floated across the lake.

This is followed by the observation that there are "very few verbs which are Motional or Durational and which cannot be interpreted as being Agentive when the subject is Animate" (1976:158). There is nothing wrong with these observations except that they are not very revealing. A closer look at the very examples provided ((20) to (22)) shows that their subjects do not bear exactly the same relation to their respective predicates concerning the property in question, even if it is restricted to intentionality as the only decisive factor. Purposive constructions are both uncommon and unnatural in combination with (21) and rather unlikely in combination with (22), while (20) is (by itself) more likely than not to receive an 'intentional' interpretation. Alternatively, while (21b) and (22b) seem all right and the latter one is reminiscent of (23), (20b) is rather strange:

(21b) John rolled down the hill unconscious

(22b) John floated across the lake unconscious

(20b) John went into the room unconscious.

Thus the criteria of 'animacy' and 'intentionality' cannot be sufficient. Gruber does, however, identify what we might call here central-core or prototypically agentive verbs as those whose subjects are obligatorily rather than optionally agents, e.g. 'run' and 'flee'. The remaining English motion verbs presumably optionally take agents as subjects, though; therefore no further distinctions are deemed necessary.

A rough but more detailed classification of verbs in terms of agentivity is attempted by Miller and Johnson-Laird (1976). Some verbs are said to involve this notion in the sense that the question can arise as to whether the act was intentional or accidental; e.g. 'kill' in a sentence like He killed a man may be understood as intentional, and in that case it is agentive; or unintentional, in which case it is non-agentive. Another category of verbs is exemplified by 'die' and there the question of agentivity does not arise at all (they could be understood as non-agentive par excellence). In addition to these two, one more category is recognized, where intentionality is incorporated into the meaning of the verbs in question. In such cases the question of agentivity again does not arise, within this system, since it is a necessary condition, e.g. 'chase' in They have been chasing him since dawn. These verbs could be therefore called agentive par excellence. This is in essence a 'necessary and sufficient conditions' approach, which if applied to a specific area of the vocabulary of a language, such as the one under investigation here, yields rather poor results. A few verbs such as 'kiniyao' (hunt) and 'kataḍioko' (chase) can be shown to necessarily incorporate the feature of intentionality and therefore qualify as truly agentive. The rest would simply have to be unmarked for this feature. Consideration of a single example will suffice at this point:

(24) *o janis taksiðevi ja ti jaro*  
John is travelling to Yaros.

(V=taksiðevo)

It can be safely argued that the sentence is not ambiguous as to an intentional and an unintentional interpretation of 'taksiðevo', but simply vague. So, 'taksiðevo' will be unmarked, or neutral with respect to agentivity. The same would apply to 'γλίστραο' (slip), though common sense would dictate a differentiation between these two at least: 'taksiðevo' is usually understood as describing an intentional act (although it admittedly does not incorporate an 'intentionality' feature by necessity). The facts of 'γλίστραο' are very different, however. The cases where it is not an accident to slip are very rare. Nevertheless, within a system which works with necessary and sufficient conditions, 'γλίστραο' cannot be marked as essentially different from 'taksiðevo' in terms of agentivity; for the former verb can also appear with a purposive construction:

(25) *o kloun γλίστρισε κε επεσε ja na kani ta peðja na γελασun*  
the clown slipped and fell to make the children laugh.

Since (25) is grammatical 'γλίστραο' would have to appear in the same category with 'πιγENO' (go), 'φεvγο' (leave) and 'taksiðevo' (travel), despite the fact that (25) reflects one of the least characteristic uses of the verb.

The problem with all such accounts seems to be that they restrict agentivity and agentive verbs to the paradigm cases, i.e. those which involve a prototypical understanding of the notion of agent only. They consequently expect verbs to be either agentive or non-agentive on the basis of whether the subject they each accept is animate and intentional or not. The relevant features of this traditional notion of agent are more or less already offered in Lyons (1977). The agent is understood as involving an animate entity which intentionally and responsibly uses its own force or energy to bring about an event or initiate a process resulting in a change in the physical condition or location of some other entity. These properties indisputably characterize what we may call a prototypical agent. There is no

indication, however, as to what happens in 'non-paradigm' cases, where the relevant features are said to be separable from each other. We therefore need a more detailed analysis of what this prototypical notion of agent involves and at the same time a specification of the points at which deviations from the prototype can occur. This should lead to a better understanding of verbs in different semantic domains with respect to the property in question. Such an understanding implies raising the question of agentivity for each verb but not expecting a yes-no answer.

Types of entities which can be regarded as closest to the prototypical agent are naturally those perceived as having internal energy, whose motion is not perceived as resulting from some other, external cause and is therefore inferred to arise from within. Natural entities (e.g. the sun or clouds) and natural phenomena (e.g. rain, earthquakes, fire) are probably the clearest cases, followed by certain kinds of machines (e.g. vehicles or computers).<sup>1</sup> Objects unable to act (move, function) on their own (e.g. books, stones) and therefore characteristically objects not perceived as self-moving are at the bottom of the scale. The priority of 'perceived' versus 'logical' cause cannot be too strongly emphasized and examples from the domain of motion verbs are abundant in this respect. Consider all the motions attributed to the unmoving sun: e.g. '*aneveni*' (goes up), '*vveni*' (comes out), '*yirizi*' (turns), '*fevvi*' (leaves), '*pefti*' (falls). Consider also the case of vehicles which seem to be regarded as extensions of human motion and are therefore compatible with actions otherwise attributed to humans and animals (including '*trexo*' (run) in MG). In short all these are entities with motion perceived as self-generated; the most typical such entities are humans, especially as they are also capable of intentional action and can be regarded as prototypical agents. Animals are obviously the next step, since they also act intentionally despite the fact that sometimes their actions are attributed to instinct. Linguistic evidence for this is the fact that they can appear as subjects of clearly intentional verbs such as '*kiniyao*' (hunt).

Control over one's motions is a characteristic closely linked to intention (see Givón 1979) and animals are also understood as having



perceived as the direct causer of an event, intending to bring this event about and having absolute control over its completion. Within the framework of Prototype theory, agentivity is understood as a cluster of these properties rather than one discrete feature. Each property is also understood as scalar. Each subsequent point on the scale marks a deviation from the prototype. The hierarchy within each property does not seem to require further explanation. The directionality of the scales constituting agentivity is considered universal, but different languages are expected to draw the dividing line at slightly different points. The specific proposal presented below of how this cluster of scaled properties can be understood is offered in Givón (1984:107):

- "a. Humanity: human > animate > inanimate > abstract
- b. Causation: direct cause > indirect cause > non-cause
- c. Volition: strong intent > weak intent > non-voluntary
- d. Control: clear control > weak control > no control
- e. Saliency: very obvious/salient > less obvious/salient > unobvious/nonsalient"

Givón considers that ontogenetically (or at least ontologically) we are dealing with one core property: obviousness/salience of cause. His explanation is worth quoting in full:

"... a human is closer to the ego, thus more familiar and obvious. Direct causes tend to be perceptually more obvious, occupying a clear *boundary position* within the chain (as also does the *effect*, which is categorically coded as *patient*). Intermediate points in the chain are less salient. Strong intent creates a higher *probability of success*, i.e. visible effect. Ditto for strong control." (1984:107)

It is fairly clear that this notion of agent is restricted in a different direction namely in subsuming agentivity under causativity. For the moment, transitivity and direct vs indirect causatives will be discussed in this light and then an extension of this notion will be attempted to cover intransitives and MG mediopassives also.





(31) *o makis kitakse ena vivlio*  
Makis looked at a book

(V=*kitazo*)

Considering transitivity, causativity and agentivity separately, (27) can be thought of as prototypically transitive, causative and agentive; (30) is less prototypically transitive than the other two, also less agentive than either and non-causative; (31) is more transitive and more agentive than (30) since it has a volitional subject and less transitive than (27). However, precisely because (31) contains a volitional subject it is not equally non-agentive with (30), although they are equally non-causative. In short, distance from the prototype does not seem to me to be at parallel points along the three dimensions in question. In this sense it can be thought that transitivity constitutes a conflation of the separate dimensions of agentivity and causativity.

In view of what has preceded, it can be argued, however, that the degree of causativity of transitive verbs depends mainly on the degree of deviation from the prototype of the patient. Obviousness of change in the object can be shown to play a more important role than agentivity of the subject (for those cases at least where the two are not completely interdependent). Notice, for instance, the case of MGMVs accepting a NP of location (see 3.2.1, category I). I have suggested that a possible measure/criterion for causativity might be passivizability. One might expect that the less affected the 'patient', the less possible it would be for it to appear as the subject of a passive construction.\* Some of the V-NP<sub>LOC</sub> examples in 3.2.1, I can be contrasted with V-Prep-NP<sub>LOC</sub> constructions (with the same verb) and seen as viewing the object as more important to the event than their V-Prep-NP<sub>LOC</sub> counterparts in which the NP<sub>LOC</sub> is viewed simply as a point of reference for the subject's location or movement (cf. Givón 1984:99). In view of these observations reconsider now the following examples:

(32a) *o janis piðikse to fraxti*  
John jumped the fence

(V=*piðao*)

vs

\*(see examples (32) to (39)).

(32b) *o janis piðikse pano apo to fraxti*  
John jumped over the fence

(33a) *taksiðepse (olo) ton kosmo* (V=*taksiðevo*)  
s/he travelled (all) the world

vs

(33b) *taksiðepse se olo ton kosmo*  
s/he travelled to/in all the world  
s/he travelled all around the world

There is clearly more than one way of handling such cases. They may be understood as parallel to a recent development in MG syntax whereby in very colloquial speech the preposition marking the location of an object or the goal of the motion is completely omitted; e.g.:

(34a) *piyeni ðesaloniki* (V=*piyeno*)

instead of

(34b) *piyeni sti ðesaloniki*  
s/he goes to Salonica.

Similarly:

(35a) *ine parisi* (V=*ime*)

instead of

(35b) *ine sto parisi*  
s/he is in Paris.

This may be explained in terms of the verb's having enough semantic information - 'move towards goal' in the case of '*piyeno*' (go) and 'position in space' in the case of '*ime*' (be) - to make the

preposition redundant. Notice, in this respect, that in either case, i.e. directional or stationary, the preposition is the same (i.e. 'se') and that elimination of 'sto'/'sti' (which is in effect Prep. + Article) applies only after the two most general (highest taxonomic level) verbs of the relevant categories, i.e. 'piyeno' and 'ime' respectively.

An alternative view to redundancy in the case of 'piðao' and 'taksiðevo' in (32a) and (33a), is the one compatible with Prototype theory, namely construing a locative as a patient object, i.e. construing events as involving direct objects; but since these objects are not essentially affected by the subject's action, the resulting events are very far from the transitive prototype. It seems plausible to assume that precisely because the object does not become a prototypical enough patient in such cases, it cannot be further promoted to subject position in a passive construction, hence (32a) does not have a corresponding:

(32c) \**o fraxtis piðixtike (apo to jani)* (V=piðjeme)  
the fence was jumped (by John).

Neither does (33a):

(33c) \*(*olos*) *o kosmos taksiðeftike* (V=taksiðevome)  
the (whole) world was travelled.

This change of perspective may explain why:

(36a) *o janis prosperase to mayazi* (V=prospernaο)  
John passed by the shop

does not have a corresponding:

(36b) \**to mayazi prosperastike (apo to jani)* (V=prospernjeme)  
the shop was passed by (by John)

while (37a) does:

(37a) *to fiat prosperase ti volvo* (V=*prospernjeme*)  
the Fiat overtook the Volvo

(37b) *i volvo prosperastike apo to fiat* (V=*prospernjeme*)  
the Volvo was overtaken by the Fiat.

It can be said that the car in subject position in (37b) is in this case understood as 'affected' by having been overtaken by another car (as, for instance, in a car race).

A clearer case is perhaps presented by (38) vs (39):

(38a) *o jani diesxise to dasos* (V=*diasxizo*)  
John crossed/traversed the wood

(38b) *\*to dasos diasxistike (apo to jani)* (V=*diasxizome*)  
the wood was crossed/traversed (by John)

(39a) *ena potami diasxizi to dasos* (V=*diasxizo*)  
a river traverses the wood

vs

(39b) *to dasos diasxizete apo ena potami* (V=*diasxizome*)  
the wood is traversed by a river

The examples in (39) register something permanent and important in connection with the wood; it is in a way cut in two by the river. It is therefore plausible to consider that in this latter case it is closer to the prototypical patient as it is more affected by the subject. Consequently (39a) is closer to the transitive prototype than (38a) and this could be the reason why it has a corresponding passive.<sup>2</sup> The crucial thing to notice here is that it is not the properties of the subject, but rather the condition of the object which is decisive here; while the subject in (38a) is both animate and volitional, the subject in (39a) is neither.

For similar reasons (40a) has a parallel in (40b) and (41a) in (41b):

(40a) *o exθros perikiklose tin poli* (V=*perikiklono*)  
the enemy surrounded the city

(40b) *i poli perikikloθike apo ton exθro* (V=*perikiklonome*)  
the city was surrounded by the enemy

(41a) *ena sinefo kapnu perikiklose to spiti* (V=*perikiklono*)  
a cloud of smoke surrounded the house

(41b) *to spiti perikikloθike apo ena sinefo* (V=*perikiklonome*)  
*kapnu*  
the house was surrounded by a cloud  
of smoke.

A possible explanation of the facts of '*θiasxizo*' and '*perikiklono*' is that John in (38b) is a single entity, occupying a point in space at any given time, and therefore unable to stretch all the way across a wood (thereby dividing it into two parts) at a given moment in time. On the other hand, since a river extends considerably further on a horizontal plane than 'John', it can easily divide a wood into two (as in (39)). Likewise, 'enemy' in (40) designates a whole collection of individuals, who can therefore easily form themselves into a circle, i.e. the entity has extent. The essential facts about 'wood' in (39), 'city' in (40) and 'house' in (41) (by comparison with 'wood' in (38a)) is the relationship in which they stand to something with extent, a river and the enemy/the smoke respectively.

In any case, the qualities of the subject are not decisive in the difference between (38b) and (40b). The object seems to be more seriously affected in (40a, 41a) and therefore closer to the transitive prototype than (38a). For the same reason it is also closer to the causative prototype. Most importantly, animacy and intentionality of the subject are not crucial in any of the cases just discussed. Apparently the degree of causativity rests mainly

with the degree of 'patientivity' of the affected object. 'prospernaō' (overtake), 'perikiklono' (encircle, surround), 'ōiasxizo' (traverse) + NP<sub>LOC</sub>, although they are not causatives of motion, are nearer the causative prototype (in the sense of change of condition of the object) than other [NP<sub>LOC</sub>] verbs which cannot passivize. This difference depends wholly on how much of a patient the object is and therefore on qualities of the subject other than animacy and intentionality.

A number of points raised in earlier sections (3.1, 3.2, 3.3) will be taken up in what follows and examined in the light of this 'prototype' understanding of transitivity and agentivity. It is considered that within this framework more light can be cast on the relevant issues, i.e. transitives which are not causatives of motion, the relation between phonologically identical causative/non-causative pairs, direct vs indirect causativity, agentivity.

### 3.5 Direct vs indirect causatives

The distinction between direct and indirect causatives has been already mentioned. It will be argued here that it constitutes perhaps the best way to investigate the relationship between causativity and agentivity. Consider first the verb 'xorevo' (dance) which can be used in a variety of ways and occupy different points on a scale of transitivity and causativity. It will be looked at in some detail as it constitutes a good example of the insufficiency of formal, syntactic characteristics and restricted notions of agentivity.

(42) *i marieta xorevi to xoro tis kiljas* (V=xorevo)  
 Marietta dances (the) belly dance

(43a) *o filipos xorevi ti marieta*  
 Philip dances Marietta  
 Philip dances with Marietta.

(43b) *o filipos xorevi me ti marieta*  
Philip dances with Marietta

(44) *i dada xorevi to moro sta yonata tis*  
(the) nanny dances the baby on her knees

The differences between the various points on the scales in question can be captured by reference to the notions already discussed. As the verb is basically an intransitive of motion, none of the NPs here construed as direct objects are prototypical patients. In (42) the object NP, far from being a patient, is in effect similar in function to a manner (adverbial) specification. In (43a) it could be thought of as derived from a PP whose NP is in that case construed as a direct object; the object is affected more than in (43b) which describes the same event, in a way, in that the initiative of performing the event is attributed to the subject; intention is probably shared but viewed as mainly stemming from the subject; weak control only can be attributed to the subject as the object-patient must necessarily also use its self-moving mechanism (in the appropriate manner). In this sense the causer is non-salient. The main point here is that the event is described as an instance of indirect causation. In (43b) the object appears within the PP and is clearly viewed as less affected than in (43a); all the factors responsible for the execution of the act/event (i.e. intention, control, cause, responsibility, initiative) are viewed as shared by subject and object. The question of causation does not arise. Finally, in (44) the object is a prototypical patient; it need not be using its self-moving mechanism in the least, and although intention may be common to subject and object, it is clearly attributed to the former, who is also the direct causer of the event and has clear and obvious control over it. This is an instance of a very salient causer, a prototypical agent: she is both perceived and wholly responsible for the event. By contrast with (43a), this is a case of direct causation.

This particular verb also clarifies the status of the causatives belonging to category I (in 3.2). It seems quite reasonable to

regard cases of what I call 'phonologically identical' causative/non-causative pairs as a type of extension of meaning. The result of a process of eliminating prepositions is a direct object in place of a PP (construing a locative as a patient). Assuming that causatives of motion of the type in question are derived from the corresponding intransitives, one can think of them as the result of a process parallel to the one just mentioned in connection with PPs: 'construing an intransitive as a transitive'. The close link between the various uses of 'xorevo' just discussed can be seen as an extensive example of such a process. The process starts with a genuine intransitive as in '*o filipos xorevi sto baletto tis operas*' (Philip dances at the ballet of the Opera). There follow cases such as the examples provided (42) - (44) where the last one, at least, involves a direct causative of motion. There is, of course, no question of regarding these various instances of 'xorevo' as 'homophones'. Similarly for '*ki<sub>2</sub>lao<sub>2</sub>*' (roll), '*strivo<sub>2</sub>*' (turn), '*vuljazo<sub>2</sub>*' (sink) and the remaining verbs of category I of MG causatives of motion.

In discussing the facts of direct vs indirect causatives it seems useful to compare them with explicit causatives, expressed in MG through verbs such as '*kano*' (make), '*anagazo*' (force) and the like, and link the issue with the agentivity scales.

Consider the differences between explicit causatives (henceforth EC), and lexical ones (henceforth LC), comprising direct and indirect causatives (henceforth DC and IC respectively):

EC (45a) *i vroxi mas ekane na yirisume piso* (V=yirizo)  
the rain made us come/go back

LC (45b) ??*i vroxi mas yirise piso*  
the rain turned us back

- EC (46a) *i proelasi tu exθru ekane to strato na ipoxorisi* (V=*ipoxoro*)  
 the advance of the enemy made the army retreat
- LC (46b) *\*i proelasi tu exθru ipoxorise to strato*  
 the advance of the enemy 'retreated' the army
- EC (47a) *\*ekana ta vivlia na anevun sto rafi* (V=*aneveno*)  
 I made the books go-up on the shelf
- LC (47b) *anevasa ta vivlia sto rafi* (V=*anevazo*)  
 I took-up/put-up the books on the shelf
- EC (48a) *o janis mas ekane na anevume pano xoris na to θeli* (V=*aneveno*)  
 John made us go-up upstairs without wishing to
- LC (48b) *?o janis mas anevase pano me tis fones tu xoris na to θeli* (V=*anevazo*)  
 John took-up us upstairs with his screams without wishing to  
 John made us go upstairs with his screams without wishing to

The main points to notice here can be summed up as follows:

- (a) Explicit causatives may have causers that are far from prototypical agents, e.g. (45a) and (46a) which are also explainable as instances of 'reason' rather than 'cause', although the difference is hard to analyse in these terms. Even when the causer is human, as in (48a), s/he may lack all the remaining characteristics of a prototypical agent. Intention may be absent and control very weak. Responsibility is a subjective characteristic in that it may be attributed by the speaker-causee 'unilaterally' to the person s/he understands as the causer.

Explicit causatives are typically used when the causee is not a prototypical patient (e.g. (47a) is completely blocked), since they require that s/he must also take action, i.e. be actively involved in the event and therefore at least share the responsibility for its completion.

- (b) The distinction between DCs and ICs is not as clear-cut as may be thought, except if one concentrates on prototypical instances. Prototypically DCs should exhibit the characteristics of prototypical transitives, e.g. (47b) which is a clear case of 'manipulative' causation: the causer has all the properties of the prototypical agent and the causee is a prototypical patient.
- (c) ICs are much more naturally paraphrasable with a corresponding EC expression than DCs are, e.g. (48a)-(48b) vs (47a)-(47b). The reason is obvious: parallel to ECs their prototypical instances involve the causee's active participation in the event; the causer is attributed responsibility for the action; s/he must also exhibit at least 'weak intent' (e.g. (48b)) but exercise only weak control. The causer is, however, prototypically human; hence the unacceptability of (45b) and (46b).

Individual MG causatives of motion will differ as to the possibilities they allow and may be seen as ranging from cases very close to DC to cases of metaphoric use.<sup>3</sup>

In view of what is stated under (b) above, verbs which can be prototypically used as DCs will have a high degree of agentivity. In the field under investigation, this involves verbs such as:

'*plisiaz<sub>2</sub>*' (approach), '*strivo<sub>2</sub>*' (turn), '*virizo<sub>2</sub>*' (turn), '*perifero*' (take around), '*bizo*' (stick), '*petao<sub>2</sub>*' (throw) and others (see List IV).

Examples:

- (49a) *i nini plisiase tin karekla sto trapezi* (V=*plisiazō*)  
 Nini approached the chair to the table
- (49b) \**i nini plisiase ton jani sto trapezi*  
 Nini approached John to the table
- (49c) *??o aeras plisiase ta fila stin porta*  
 the wind approached the leaves to the door

The subject-causer should have clear control, be a direct and absolutely salient causer besides being animate and volitional and usually human, hence the unacceptability of (49c). By implication the patient has to be also a prototypical one, in the sense of having none of these properties; hence the unacceptability of (49b). Together with '*metakomizo<sub>2</sub>*' (transport furniture, etc., while moving house), '*γλίστραο<sub>2</sub>*' (slip) and '*kikloforo*' (circulate), '*plisiazō*' (approach) features at the top of the agentivity scale for MG causatives of motion, as can be attested in List IV. All these verbs are shown to accept only animate causers (and sometimes only human), scoring very high for each of the properties jointly comprising agentivity. The only property not allotted a special column in List IV is 'obviousness/salience of cause'. It is considered that salience is in fact a characterisation of the 'sum total' of the remaining properties.

A number of other verbs such as '*ipsono*' (raise), '*xamilono*' (lower), '*paramerizo*' (push aside), '*metafero*' (transport), '*bizo*' (stick), '*petao<sub>2</sub>*' (throw), '*tinazo*' (shake up/off), '*rixno*' (throw) are shown to deviate slightly from the prototype of agentivity by allowing entities other than human and animate as subjects, e.g.:

- (50) *o aeras xamilose tis ombreles* (V=*xamilono*)  
 the wind lowered the umbrellas
- (51) *i xjonostivaða tus erikse kato* (V=*rixno*)  
 the snowball threw them down.

We are still, however, in the area of high agentivity since in the case of animate subjects these verbs are marked for implying simple intention, clear control and direct causation.<sup>4</sup> The few possible exceptions are marked in List IV with an x rather than a + for the relevant property, as an indication that such uses are marginal<sup>5</sup>, e.g.:

- (52) *?o astinomos paramerise tus fitites me* (V=paramerizo)  
*tis fones tu*  
the policeman pushed the students aside with  
his screams.

Thus 'paramerizo' (push aside) will be reluctantly marked (x) for 'weak' besides 'clear' control, to take care also of uses such as exemplified in (52).

Verbs marked as accepting subjects exercising either strong or weak control as well as allowing the possibility of IC are 'ferno' (bring), 'piveno<sub>2</sub>' (take to), 'apomakrino' (take away), 'sikono' (raise, lift), 'vazo' (put), 'vyazo' (take out), 'anevazo' (take up), etc., e.g.:

- (53a) *piye ta ruxa sto kaθaristirio* (V=piveno)  
s/he took the clothes to the laundry

is prototypically agentive, while:

- (53b) *piye ti θia tu sto theatro, opos ton ixē* (V=piveno)  
*parakalesi*  
he took his aunt to the theatre, as she had  
asked him to

is less so, because although the agent is high on the 'animacy' scale and has simple intention, he has 'weak control' of the situation: the responsibility for the act is shared with the causee and the initiative is attributed to the latter. Thus there is good reason to

presume that the causee is actively participating in the event (at least using her self-moving mechanism). Notice also some instances of 'ferno' (bring):

(54a) *ta treno fernun travmaties* (V=ferno)  
the trains bring wounded (persons)

(54b) *i θalasa efere skupiðja stin paralia*  
the sea brought litter to the beach

with subjects low on the 'animacy' scale; and

(54c) *efera to filo mu sto parti*  
I brought my friend to the party

which is similar to (53b) in that the object is again animate, volitional, using his/her self-moving mechanism, etc., in short quite an unprototypical patient. These less agentive verbs pose an interesting problem. Should they be understood as involving indirect causation in uses such as those exemplified in (53b) and (54c) above, or not?

The dividing line between direct and indirect causation has generally been assumed to be presence vs absence of 'manipulation' (cf. Shibatani 1976a,b, where direct causation is called 'manipulative causation') and the borders are assumed to be clear. It seems, however, that there is gradation within both the manipulative and the non-manipulative kind and in fact a line leading from explicit causatives to prototypically direct ones. Crucial features in this connection seem to be: 'control', 'accompaniment' and 'initiative', all leading to a specification of the degree of responsibility of causer and causee, and degree of salience of cause.

In the absence of a supporting context, it is difficult to prove the validity of these observations. An attempt will be made, however, at a careful analysis of relevant sentences in the hope of showing that

what are here posited as 'crucial features' are indeed rightly so characterized and especially that none of them, taken individually, is sufficient. Consider the following examples:

- (55a) *mas ekane na pame sto parti me tin apili* (V=*piyeno*<sub>1</sub>)  
*oti aljos den tha mas ksanamilisi*  
s/he made us go to the party threatening  
that otherwise s/he would not talk to us again.

This is an instance of an EC involving intransitive '*piyeno*<sub>1</sub>' (go). The causer does not participate physically in the execution of the actual caused event. S/he does not accompany the causees. There is good reason to believe, though, that s/he has 'strong intent'. The remaining examples involve transitive-causative uses of '*piyeno*<sub>2</sub>' (take to).

- (55b) *mas piye sto parti me tin apili oti* (V=*piyeno*<sub>2</sub>)  
*aljos den tha mas ksanamilisi*  
s/he took us to the party threatening that  
otherwise s/he would not talk to us again

In (55b) the causer is attributed strong intent; s/he has the initiative in the change-of-location event and also accompanies the causees who can be only attributed weak intent and no initiative.

- (55c) *piye ti mitera tu sto jatro opos ton ixē* (V=*piyeno*<sub>2</sub>)  
*parakalesi*  
he took his mother to the doctor as she had  
asked him to do

The main difference here seems to be that although the causer accompanies the causee, both (strong) intent and initiative are attributed to the latter.

- (55d) *piye ti yata sto jatro* (V=*piyeno*<sub>2</sub>)  
s/he took the cat to the doctor

Here, of course, the causer possesses all the characteristics of a prototypical agent and the causee is more or less a prototypical patient. In essence (55d) is parallel to (53a) '*piye ta ruxa sto kaθaristirio*' (s/he took the clothes to the laundry).

Examples (55a-d) are meant as an illustration of the gradedness of the phenomenon of causativity, which can be directly linked to the facts of agentivity (as already pointed out at the beginning of this chapter). A direct/indirect dichotomy does not seem very illuminating. The traditionally used feature of 'accompaniment', although useful for different purposes, is not very important in this particular context and can be replaced by the property of 'control'. Notice, for instance, that (55a) is an instance of very weak control and low salience on the part of the causer, that (b) and (c) seem to differ significantly in terms of control (the former one involving of weaker control than the latter), while (d) is characterized by strong control. The suggestion here is that 'control' seems to take care of 'accompaniment' in a more revealing way, as it can link directly with salience of cause. It is applicable under the following conditions: the act can only be performed by the actor being physically present and acting until its completion; at the same time, no active participation is required on the part of the moving object (patient). These conditions are characteristic of situations considered here to be prototypically under the clear control of the causer. If, or to the extent that, they are satisfied, the verb is considered more agentive (than otherwise) in this respect. Thus, for instance, '*ipsono*' (raise) will get a higher score than '*sikono*' (raise), '*anevazo*' (put/take up), '*ferno*' (bring), etc., all other things being equal, since cases parallel to (55a), (55b) and (55c) are impossible in the case of '*ipsono*' (raise); but not in the case of the latter verbs. This means that it can only function as a clear case of a direct causative. The salience of a causer as a prototypical agent cannot be disputed in cases such as that exemplified by all instances of '*ipsono*' (raise).

Situations usually expressed with an EC (explicit causative), where the causer may be simply issuing an order, making a suggestion, asking the causee to perform an act, giving directions, and the like,

are in certain cases of MGMVs also expressible through a LC (lexical causative).

Examples of such causative verbs are: 'sikono' (raise), 'kaθizo' (make s.o. sit), 'vazo' (put), 'vyazo' (take out), 'ksaplonο' (make s.o. lie down), 'anevazo' (take up/make s.o. go up), 'katevazo' (take down/make s.o. go down), 'pernao<sub>2</sub>' (pass<sub>CAUS</sub>), 'strivo<sub>2</sub>' (turn<sub>CAUS</sub>), etc. Characteristic examples of the different possibilities are:

- (56) *i δaskala sikose ton jani ston pinaka* (V=sikono)  
the teacher 'stood up' John to the blackboard  
the teacher made John stand up in front of the blackboard
- (57) *i δaskala evyale ton jani ekso* (V=vyazo)  
the teacher 'took out' John  
the teacher made John go out/asked John to go out
- (58) *i nazi estisan tus kratumenus ston tixo* (V=stino)  
the Nazis stood the prisoners at the wall
- (59) *evale ta peδja mesa ja na min kriosun* (V=vazo)  
s/he put the children inside so that they would  
not catch cold  
s/he made them go inside so that they would not catch cold
- (60) *perase tus ksenus sto saloni* (V=pernao)  
s/he passed the guests to the lounge  
s/he showed the guests into the lounge
- (61) *zitisan apo ton oδiyo na tus katevasi* (V=katevazo)  
*stin proteleftea stasi*  
they asked from the driver to take them down  
at one stop before the last  
they asked the driver to put them off  
at one stop before the last.



commonly used for an appointment made (prior to the caused event) and not kept by the subject.

Salience of cause is very low in these examples because control is very weak. If the causer is simply issuing an order, s/he is less salient than a direct causer, e.g. (62)-(64) as opposed to 'carrying' someone/something; if s/he is not even present during the execution of the act, s/he is even less salient, e.g. (62a-b), (64) as opposed to (63). The verbs are not understood literally; although they imply 'change-of-location' ('*serno*' (drag), '*trexo*' (run)), or 'change-of-position' of the causee ('*stino*' (make s.th. stand, place)), probably only the feature of 'speed' is retained in '*trexo*' (run), and '*serno*' (drag) retains little more than 'unwillingness to perform the act' or 'acting as if dragging one's feet along'. As for '*stino*' (make s.o. stand), it probably keeps the feature of 'having an upright position', although even that is not absolutely necessary; the predominant characteristic in such uses is 'being at a fixed point unwillingly or for a longer period than one intended to'. It is also interesting to notice that although the causer is low on the scales of control and cause, and perhaps neutral/unspecified for degree of intent, s/he is very high on the animacy scale (usually human), e.g.:

- (65)     \**i vroxi mas esire spiti mas*                             (V=*serno*)  
          the rain dragged us home
- (66)     \**o ðinatos iljos mas estise stin paralia*                 (V=*stino*)  
          the strong sun 'stood' us on the beach
- (67)     \**to aftokinito mas trexi sinexia sto servis*             (V=*trexo*<sub>2</sub>)  
          the car makes us run continuously to the 'service.

This shows the importance of understanding agentivity as a cluster of properties; deviation from the prototype of agentivity is expected to take place in any one (or more than one) of its individual properties. It also gives an idea of how extension of meaning may be understood to work, i.e. as deviation from the prototype.

It has been already stated here that only physical motion is taken into consideration and no figurative uses of MGMVs. Yet cases like:

- (68) *o θorivos apomakrine tus perastikus* (V=*apomakrino*)  
the noise drove away the passers-by

which are taken into account since they involve physical change-of-location of the object and a concrete causer-subject can well be thought of as a step in the process of meaning extension. Consider (69) as a paraphrase of (68):

- (69) *i perastiki apomakrinθikan apo to θorivo/* (V=*apomakrinome*)  
*eks etias tu θorivu*  
passers-by pulled/went away because of the noise.

It seems plausible that the NPs expressing cause or reason within a PP ([*apo to θorivo*]PP, [*eks etias tu θorivu*]PP) in (69) are construed as agents and become subjects in sentences like (68) where the causee is consequently 'demoted' from the subject position it holds in (69) to direct object position in (68). Givón's model does not raise this point, but I consider it quite integratable in any form of Prototype theory. It is quite conceivable that every step on a scale marking deviation from the prototype of a transitive, causative, agentive construction should be understood as a step towards extension of meaning and may bring about a rearrangement of the roles/functions of the different arguments of a predicate, focusing some and defocusing others. The resulting constructions will in effect present the 'same' event viewed from a different angle.

### 3.6 Agentivity measurements for intransitives

In what has preceded, some arguments were presented against a complete conflation of causativity and agentivity and in favour of considering only transitives as candidates for membership in the category of causatives, at least for methodological reasons. It has also been suggested that the degree of agentivity of causatives of

motion could be 'measured' on the basis of Givón's (1984) agentivity scales. List IV shows how the verbs so examined compare with each other with respect to this particular dimension. The only property (among the cluster of properties jointly constituting agentivity) which is not attributed a separate column is salience. It is considered that especially in the absence of any specific contextual information, the relative salience of the 'causer' is in fact reflected in the overall picture of how agentive the verb is on the basis of a consideration of the remaining properties.

A further deviation from Givón's analysis is implicit in what has already been said concerning agentivity, namely that intransitives of motion also exhibit different degrees of agentivity. It is considered therefore that one-argument predications can be also categorized as more or less agentive on the basis of properties such as animacy, intention and control. The responsibility of the actor is now measured in relation to his/her own activity, which is not transferred to any other entity. The property of causation is inapplicable in this case, especially as it is presented in Givon's scales, i.e. in terms of direct and indirect cause, so there is no column corresponding to it in List V which includes non-causatives of motion. Transitives describing the motion of their logical subject are considered along with intransitives of motion. The distinction drawn is in fact between causatives of motion (which can only be transitives) and non-causatives (which can be either transitive, e.g. 'kiniyao' (run after, hunt) and 'kataðioko' (chase), or intransitive, e.g. 'trexo<sub>1</sub>' (run) and 'aneveno' (ascend)). The assumption implicit here is that causatives are to be compared for the purposes of agentivity measurements with other causatives only; and, consequently, non-causatives with other non-causatives. Consider, first, sample sentences with 'kataðioko' (chase):

(70a) *i astinomia kataðioki ton ðrapeti* (V=kataðioko)  
 the police are chasing the fugitive

(70b) *to peripoliko kataðioki ton ðrapeti*  
 the patrol car is chasing the fugitive

(70c) *??i sferes kataðiokun ton ðrapeti*  
the bullets are chasing the fugitive

(70d) *\*i petres kataðiokun ton ðrapeti*  
the stones are chasing the fugitive.

Clearly the verb scores high on the 'animacy' scale; the same applies to the 'intent' and 'control' scales. It hardly needs to be demonstrated with examples that to chase somebody one must have a strong intention to do so and clear control of the situation; it is most unlikely that the event is in accordance with the wishes of the chased person or that the latter has any active involvement in the accomplishment of the action.

It can be shown that 'trexo' (run) is a step lower in agentivity than verbs like 'kataðioko' (chase) and 'kiniyao' (hunt, run after); on the 'animacy' scale, besides animates, vehicles, and natural forces, it also accepts certain kinds of non-self-moving subjects such as liquids and mass objects moving under the effect of gravity or impetus, e.g.:

(71) *to nero trexi mesa ston kuva* (V=trexo)  
the water is running into the bucket.

There are less grounds for postulating 'strong intent' for 'trexo' (run) than for 'kataðioko' (chase) and 'kiniyao' (hunt, run after). It is, however, conceivable that activities requiring a relatively greater amount of energy to accomplish than others should be marked for marginally exhibiting 'strong intent' besides 'simple intent' (hence 'trexo' receives x in the relevant box). The basis for marking this way verbs such as 'trexo<sub>1</sub>' (run), 'skarfalono' (climb) and 'kolibao' (swim) is the fact that they yield quite unnatural sentences if combined with expressions such as 'xoris loyo' (for no reason), 'xoris na kseri jati' (without knowing why), etc. It is felt that there is a difference at this point from 'perpatao' (walk), for instance, which is quite compatible with such expressions and is therefore only marked for 'simple intent'. Notice also that

'perpatao' is higher than 'trexo' on the animacy scale as it requires animate subjects only, but 'vaðizo' (step) and 'porevome' (go on foot), although very similar to 'perpatao' in most respects, are even higher on the animacy scale as they require only human subjects. All these verbs are generally agentive but not for the same reasons; hence they appear at different levels of agentivity. Notice, for instance, that 'ormao' (burst in/on) has to be marked for 'strong intent' rather than 'simple intent' but is lower on the animacy scale since vehicles and natural forces (besides animates) can also appear as its subjects. Most of these verbs in the more or less prototypically agentive group are marked for 'clear control'. It is felt, however, that 'yonatizo' (kneel), 'kaθome' (sit) and 'ksaplono' (lie down) should also be marked for marginally allowing 'weak control' since they can appear in sentences such as:

(72) *yonatise apo to ksafniko xtipima* (V=yonatizo)  
s/he kneeled under/because of the sudden blow

or

(73) *zalistike ksafnika ke ksaplose sto patoma* (V=ksaplono)  
s/he suddenly felt dizzy and lay on the floor

where 'epese sta yonata' (s/he fell on his/her knees) and 'epese sto patoma' (s/he fell (flat) on the floor) are implied, respectively. It also seems reasonable to mark 'periplanjeme' (roam around) for 'non-intent' as well as 'simple intent' to take care of uses such as:

(74a) *periplaniθikan apo laθos plirofories* (V=periplanjeme)  
they roamed around because of wrong directions

(74b) *periplaniθikan stin poli ja na perasi i ora*  
they roamed around (in) the town to pass the time<sup>6</sup>.

So the reason why 'periplanjeme' still figures within the agentive group is its high score for animacy. Other verbs comparable in agentivity to the ones discussed are: 'busulizo' (crawl (as of a baby)), 'xorevo' (dance), 'xoropiθao' (hop), 'serjanizo, sulatsaro' (walk around/about).

The classification of verbs into groups is meant only as a reflection of what their 'characteristic image' is. There are clearly no borders between these 'groups'. So *'trexo'* (run) and *'piðao'* (jump) require the active physical involvement of the moving subject, yet are lower than the other verbs just discussed in terms of animacy. Although they may be felt as prototypically agentive, they are shown to be less so. These two verbs are in a way the link with the next group, consisting of verbs generally understood as unspecified for intention and therefore 'vague' as to agentivity. I am referring to MGMVs such as:

*'taksiðevo'* (travel), *'epistrefo<sub>1</sub>'* (return), *'plisiazō<sub>1</sub>'* (approach), *'ðiasxizo'* (traverse), *'aneveno'* (ascend), *'piveno<sub>1</sub>'* (go), *'erxome'* (come), *'fevvo'* (leave), *'beno'* (enter), *'virizo<sub>1</sub>'* (turn)

and others which allow for situations where the moving entity may be lower on the 'animacy' scale than 'human' and may execute the described motion while being carried, for instance, i.e. not necessarily using its self-moving mechanism. To take care of this latter possibility these verbs are marked for both 'strong' and 'weak control'. It is interesting to notice, however, the differences which they exhibit.

A small number among them: *'epistrefo<sub>1</sub>'* (return), *'virizo<sub>3</sub> piso'* (come back), *'plisiazō'* (approach), *'taksiðevo'* (travel), *'ðiasxizo'* (traverse) are compatible with qualifying phrases of the kind *'xoris na to katalavi'* (without knowing/realizing it) and can thus be singled out as marginally allowing 'non-intent' and 'no control'. Unlike *'taksiðevo'* (travel), for instance, *'piveno<sub>1</sub>'* (go) and *'fevvo'* (leave) yield very odd sentences in such environments. What is perhaps more interesting, if the moving entity is understood as being unconscious, or in any way completely lacking control or intention with respect to the motion described, *'erxome'* (come) sentences such as (75) are fine, but *'piveno'* or *'fevvo'* ones, such as (76) and (77) are not:

- (75) *stis 5 irθan i travmaties sto nosokomio* (V=*erxome*)  
 at 5 o'clock the wounded came to the hospital
- (76) *??stis 5 efiyan i travmaties apo to nosokomio* (V=*fevyo*)  
 at 5 o'clock the wounded left the hospital
- (77) *??stis 5 piyan i travmaties sto nosokomio* (V=*piyeno*)  
 at 5 o'clock the wounded went to the hospital.

In case '*i travmaties*' (the wounded) are completely lacking control or intention, sentences with '*tus piran*' (they took them away) and '*tus piyan*' (they took them (to)) will replace (76) and (77) respectively. The equivalent causative construction '*tus eferan*' (they brought them) need not be substituted for (75). For this reason it seems plausible to mark '*erxome*' (come) as also accepting 'no control' and 'non-intent' (besides 'clear control' and 'simple intent').

Notice the difference between '*piyeno<sub>1</sub>*' (go) and '*fevyo*' (leave):

- (78) *oli i kratumeni efiyan apo tis filakes averof;* (V=*fevyo*)  
*tus piran stis 6*  
 all the prisoners left the prison 'Averoff';  
 they took them (away) at 6
- (79) *oli i kratumeni piyan stis filakes averof;* (V=*piyeno*)  
*tus eferan/piyan stis 6*  
 all the prisoners went to the prison 'Averoff';  
 they brought them/took them there at 6.

It seems that '*piyeno*' requires at least 'weak control' while '*fevyo*' has to be marked for marginally also accepting subjects without any control over the event.

A possible explanation for these facts could be that '*piyeno*' (go) focuses on the whole journey rather than its beginning or its

end (like 'come' and 'leave'). If the speaker focuses on only the end point, 'control' is perhaps less relevant than when s/he focuses on the whole of it.

Predictably, a completely different overall picture is given by verbs such as '*katrakilao*' (roll down) or '*tremo*' (tremble) which figure quite low on a generalized agentivity scale, for a number of reasons. For instance '*katrakilao*' (roll down) scores very low on 'animacy' as it is basically restricted to non-self-moving objects (i.e. entities without a self-moving mechanism or not using it to perform the motion in question). It is also at the bottom of both the 'intent' and the 'control' scales, as it is completely incompatible with any notion of intention, e.g.:

(80) \**katrakilise ja na pjasi ti bala* (V=*katrakilao*)  
s/he rolled down to catch the ball

as well as with any notion of the subject's having control over the event. The differences within this group are very slight. Three verbs: '*γλιστραο<sub>1</sub>*' (slip, slide), '*viθizome*' (sink) and '*pefto*' (fall) can be marginally marked for 'weak/simple intent' and 'weak control' (besides 'non-intent' and 'no control', which characterize the prototypical uses of these verbs), e.g.:

(81) ?*viθistike sto θrosero nero* (V=*viθizome*)  
s/he sank into the cool water

is acceptable for a number of native speakers.

### 3.7 Modern Greek mediopassives and passives as intransitives

In the last category discussed in the previous section a number of verbs ending in '-ome' (hence '-ome' verbs) are included: '*viθizome*' (sink), '*gremizome*' (fall down/to pieces), '*sorjazome*' (fall flat on the ground). MG '-ome' verbs are mediopassive in form and, with the

obvious exception of 'deponent verbs' such as 'erxome' (come) or 'apomakrinome' (move away), are traditionally juxtaposed to active form '-o' verbs as implying that their subject is affected rather than affecting some other entity.

If this view were accepted at its face-value, '-ome' verbs should not have been considered for agentivity measurements at all; they could be simply singled out as distinctly non-agentive. It has seemed, however, on closer inspection, that the facts of these verbs concerning agentivity are not as simple as that, nor is their behaviour uniform in this respect. It is suggested here that these facts should be analysed and explained along similar lines to those applied to other one-argument predicates, i.e. 'ordinary' intransitives. In order to show the necessity of considering '-ome' verbs together with intransitives for agentivity measurements, it seems important to look briefly at the relations between passives and other related constructions. Such relations do not seem to be a straightforward matter even in languages which have been much more thoroughly analysed than MG, e.g. English. It seems best to start the discussion with a brief consideration of English passives in relation to causativity, transitivity and agentivity.

A sentence such as 'the knife was broken' is offered by Miller and Johnson-Laird (1976:518-9) as an example of a diminished passive; the missing actor is understood, 'broken' is an adjective and the omission is syntactic. It seems plausible to argue that this absence of an external causer of the event is the link between passives and intransitives. Passive sentences have been recognized as intransitive ones in the literature for independent reasons (e.g. Perlmutter 1983). But the schema I envisage concerning causative-transitives, intransitives and passives involves different steps along a scale of 'diminished importance of an external causer' and is closer to the approach adopted by Shibatani (1985) who characterizes passivization as a process of 'agent-defocusing' (p.830). The actual scale I have in mind may be exemplified as follows:

- (a) (82) 'John broke the glass' (Transitive-causative)  
 Causer: present and specified
- (b) (83) 'Someone broke the glass' (Transitive-causative)  
 Causer: present but unspecified
- (c) (84) 'The glass was broken' (diminished Passive)  
 Causer: only implied
- (d) (85) 'The glass broke' (Intransitive)  
 Causer: completely absent

This understanding of passives links also with the fact that they do not generally express agents overtly, i.e. agentless or diminished passives are far more numerous than those with overt agents even in those languages which do allow overt expression of an agent. The implications are particularly important for present purposes, since cases of passive sentences accepting an [*apo* NP] prepositional phrase equivalent to by-phrases for English are quite rare in colloquial MG and all the '-ome' verbs under investigation are complete in terms of valency with only one NP. The point I am making concerning the mediopassive form is that with MGMVs, at least, even in the case of genuine passives, the agent is not so much syntactically omitted as semantically downgraded and pragmatically brought out of focus in the sense of Shibatani (1985:837). If MG passives are so interpreted, the relation between genuine passives and potentials can be also brought out. MG potentials are expressed with mediopassive verb-forms, e.g.:

- (86) *ðen ðjavazete afto to vivlio* (V=*ðjavazome*)  
 it-is-not-read this book  
 this book is unreadable
- (87) *ðen troyete afto to fai* (V=*troyome*)  
 it-is-not-eaten this food  
 this food is inedible<sup>7</sup>.

Far from registering something about an external agent, sentences (86) and (87) seem to me to focus on some property of their respective subject NPs. What is perhaps more illuminating, 'spontaneous events' are expressed in MG both through intransitives, e.g.:

(88) *afto to vazο spazi efkola* (V=*spazo*)  
this vase breaks easily

- which seems to me like a clear statement about a property attributed to the subject NP - and, in the absence of such an intransitive, through a mediopassive-form verb, e.g.:

(89) *afto to iliko katastrefete efkola* (V=*katastrefome*)  
this material is destroyed easily.

There would seem to be no real difference between (89) and potentials as exemplified in (86) and (87).

A number of examples with MGMVs of mediopassive form will hopefully constitute corroborating evidence for the claim that passives are similar to intransitives in the sense that the involvement of an external agent is not invoked:

(90) *petres tinazonde ston aera apo tin korifi* (V=*tinazome*)  
*tu ifestiu*  
stones are-thrown-up into the air from the top  
of the volcano

(91) *bixtike ena agaθi sto poθi mu* (V=*bizome*)  
it-was-stuck a thorn into my foot  
a thorn got into my foot

(92) *i staθmi tu neru ipsoθike* (V=*ipsonome*)  
the level of the water was-raised/rose

- (93) *o piravlos sikoθike* (V=*sikonome*)  
the rocket was-raised (rose)
- (94) *sikoθike skoni* (V=*sikonome*)  
dust rose
- (95) *to spiti gremistike me ta xronja* (V=*gremizome*)  
the house was-pulled/brought-down with time
- (96) *to aftokinito xoθike sti laspi mexri ta tzamja* (V=*xonome*)  
the car was engulfed/stuck/went into the mud  
up to the windows
- (97) *ta nera tis limnis taraxtikan* (V=*tarazome*)  
the waters of the lake were-disturbed
- (98) *to peði ine anevasmeno sto ðendro* (V=*anevazome*)  
the child is mounted/gone up on the tree  
the child is on the tree (as a result of having gone up  
the tree).
- (99) *i marieta ine skarfalomeni sto fraxti* (V=*skarfalonome*)  
Marietta is 'climbed' on the fence  
Marietta has climbed on the fence (and is  
now on the fence as a result).

It seems completely counterintuitive to consider any of the above cases analysable as: 'x moves as the result of the activity of an external causer'. Despite the fact that most of the subject NPs in these examples are inanimate and some of them are also non-self-moving, no external agent is viewed as responsible for the motion either. They are not relatable to 'corresponding' active sentences, e.g.:

- (90') *kapjos tinazi petres apo tin korifi tu ifestiu*  
someone is throwing up stones from the top of the volcano

(91') *kapjos ebikse ena agaθi sto poði mu*  
someone stuck a thorn into my foot.

In (95) and (96) the (external) cause of the motion is in effect gravity. But the language chooses to express what is actually observable. Gravity is not a salient enough cause of motion. So no agent is registered in the least; no agent is even implied in these cases. Notice that in (92) an active form intransitive can replace the verb, i.e. 'aneveno' (go up). Similarly in (91) 'bike' (went in) can replace the mediopassive 'bixtike'. Sentences (92) to (94) are similar to cases like:

(100) *o iljos vyike piso apo to vuno* (V=vyeno)  
the sun came out from behind the mountain

where 'vyeno' (go/come out) can be also replaced by a number of other intransitives, e.g. 'perase' (passed) and 'anevike' (went up). As has been already pointed out 'gremizome' (be pulled down) can be replaced by 'epese' (fell down) in (95) and 'xoθike' (was engulfed) by 'viθistike' (sank) in (96).

Examples (90) to (97) are instances of such dramatic 'agent-de-focusing' that they move to category (d) (example (85)) of the scale sketched at the beginning of 3.7 where absolute absence of the external causer is implied. Examples (98) and (99) represent extreme cases of this situation; (98) cannot be related to 'anevastike' (was taken up); it simply implies 'to peði anevike sto ðendro' (the child went up onto the tree) and views the resulting situation as more permanent than a simple event, i.e. as having some of the properties of a state (see Chapter 2). As for (99), the mediopassive form of 'skarfalono' (climb), namely 'skarfalonome' (be climbed), does not occur in any form other than the Participle 'skarfalomenos' except marginally in potentials, e.g. 'ðen skarfalonete aftos o vraxos' (this rock is 'unclimable').

The inevitable conclusion must be that the borders between intransitives and passives are at least fuzzy. This implies that

some prototypical or 'core' instances of passives can be detected. What has been called here a 'genuine passive' refers to cases fulfilling the following criteria: (a) mediopassive form of the verb; (b) moving NP affected, i.e. theme = patient; (c) explicitly present second argument: a NP within an [*apo* NP]PP expressing the entity responsible for the motion of the theme-patient; (d) the NP of the [*apo* NP]PP possessing the characteristics of the prototypical agent. One could then further assume that the verbs occurring in genuinely passive constructions are, almost by definition, at the bottom of the agentivity scale. Hence identifying the least agentive MGMVs could amount to discovering which verbs can occur in genuinely passive sentences. Yet even that would be an unrealistic task; the marked tendency of MG to replace passive constructions with equivalent active ones results in the number of actual 'genuine passives' being extremely small within any specific semantic field (e.g. MVs). Most active verbs have a corresponding passive form which is automatically formed by analogy to common-use passives (e.g. '*metaferome*' (be transported)), but it is virtually impossible to find natural environments for them, i.e. acceptable sentences containing these verb forms. What is even more intriguing, [*apo* NP]PPs can also express 'source', e.g. '*apomakrinθike apo tus astinomis*' (he moved away from the policemen) will not be interpreted as a passive at all, although the verb is mediopassive in form ('*apomakrinome*' (move away)) and '*i astinomi*' (the policemen) has all the characteristics of a prototypical agent.

We are therefore left with one-argument predications where the mediopassive ending simply predisposes for a non-agentive understanding of the verb<sup>8</sup>. It can be shown, however, that '-*ome*' (mediopassive form) verbs exhibit different degrees of agentivity and that even genuinely passive verbs can be more agentive than some active form intransitives.

A closer look at specific '-*ome*' verbs is intended to support these points. Consider first '*gremizome*' (be pulled down, fall down) and '*viθizome*' (be sunk, sink), which have already been used as examples.

- (101a) *to spiti gremistike apo tin astinomia* (V=gremizome)  
the house was pulled down by the police
- (101b) *to spiti gremistike apo tus sismus*  
the house was brought down by the earthquake
- (101c) *to spiti gremistike apo mono tu epiði itan eripomeno*  
the house fell by itself because it was decrepit
- (102a) *to plio viθistike apo ton kapetanjo* (V=viθizome)  
the boat was sunk by the captain
- (102b) *to plio viθistike apo tin trikimia*  
the boat sank by/because of the tempest
- (102c) *to plio viθistike apo mja vlavi sti mixani tu*  
the boat sank because of some damage in its engine

The closer the cause to the prototypical agent the more likely it is that we are dealing with a genuine passive. Hence the (a) sentences are the only ones where, as already pointed out, 'gremizome' and 'viθizome' cannot be replaced by 'pefto' (fall) and 'vuljazo' (sink) respectively. In the absence of any [apo NP] specification there is no way of knowing whether the verbs in question are passive or intransitive. The degree of agentivity of both verbs is quite low, similar to that of the semantically related active form intransitives just mentioned and for precisely the same reasons; the motions described are very similar and the entities undergoing them are of the same type. What is particularly interesting here is that 'viθizome' may marginally occur in an intentional environment, unlike 'vuljazo', and is therefore slightly higher than the latter on the scale.

The clearest case of a genuinely passive verb, which is higher on the agentivity scale than a number of active form intransitives, is 'oðiyume' (be led). I consider both (103) and (104) equally

prototypical instances of this verb and equally genuinely passive sentences.

- (103) *i exmaloti oδiyiθikan apo tus frurus se* (V=oδiyume)  
*stratopeδo sigendroseos alisoδemeni ke*  
*pano se fortiya*  
the hostages were led by the guards to  
a concentration camp, in chains and  
on lorries

[subject: human, non-voluntary, no control/very weak control, non-cause]

- (104) *o ipuryos eksoterikon tis liviis* (V=oδiyume)  
*oδiyiθike apo ton iδjo ton proθipuryo*  
*stin eθusa sineδriaseon opos ixe zitisi*  
the minister of foreign affairs of Libya  
was led by the Prime Minister himself  
to the conference room just as he had asked (to be)

[subject: human, simple intent, weak control, indirect cause]

The point, of course, is that 'oδiyume' is quite compatible with the notion of the subject's intending the event to take place, having at least some control over it and some responsibility for it, as well as having the initiative for the accomplishment of the action described. It is quite evident that it should therefore appear somewhere in the middle of the agentivity scale, especially as it necessarily requires animate (and usually human) subjects. Needless to say, intransitives such as 'katrakilao' (roll down), 'vuljazo' (sink) and the like are much lower on a generalized agentivity scale.

A completely different picture is given by 'apomakrinome' (move away) which should be considered a clear case of a 'deponent verb', a characterization traditionally given to verbs which were thought to be passive in form but active in meaning. It must be pointed out

here, that the reluctance to adopt the term whole-heartedly does not imply that this is an entirely wrong way of thinking of them. The problem is, rather, that precisely because degree of agentivity and therefore 'how active a verb is' is not a given but a matter for investigation, it is not in the least clear from a semantic point of view at which point we leave deponent verbs and move into the area of true passives.

The verb '*apomakrinome*' is compatible with both simple intent and non-intent; also with clear and weak control, for the same reasons as active form intransitives like '*epistrefo<sub>1</sub>*' (return) or '*plisiazō<sub>1</sub>*' (approach). Thus (105) and (106) are equally prototypical uses of '*apomakrinome*':

(105) *apomakrinθike yriyora apo ti fotja* (V=*apomakrinome*)  
s/he moved away quickly from the fire

(106) *xoris na to kseri apomakrinotan sinexos*  
*apo to meros pu iθele na pai*  
without knowing it, he was continuously moving away  
from the place he wanted to go

It is also clear that one can 'move away' not only unwillingly but also as a passive passenger on a conveyance. For these reasons '*apomakrinome*' ends up rather high on the agentivity scale of intransitives, scoring similarly to '*erxome*' (come).

A number of examples have already been given of '-ome' verbs (sentences (90) to (97)) which function as intransitives in the sense that no external causer can possibly be invoked, although the subjects in the specific examples are inanimate and often non-self-moving. It was claimed there that no corresponding active sentences exist (although there do exist completely unrelated active sentences with the corresponding active verb forms). This implies that in these cases we cannot talk of diminished/truncated passive constructions.

The verbs in question are: '*ipsonome*' (be risen, rise), '*sikonome*' (be risen/lifted, rise), '*xonome*' (become immersed/stuck/engulfed in), '*bizome*' (become stuck in), '*tinazome*' (be thrown up, jump up), '*petayome*' (be thrown up, leap up, jump). A typical example of how this last verb is understood here is:

- (107) *petayonde floyes apo ta paraθira* (V=*petayome*)  
 are-being-thrown flames out of the windows  
 flames jump out of the windows.

Needless to say, the passive and intransitive English verbs proposed as translations are not meant as an indication that the verbs are ambiguous in MG. The point here is that they can be shown to function similarly to active form intransitives like '*xamilono<sub>I</sub>*' (lower<sub>INTR</sub>), for instance, and receive similar agentivity scores to them. A relevant example with '*xamilono*' is (108):

- (108) *ta fila tu fitu xamilosan apo tin zesti*  
 the leaves of the plant dropped/'lowered' from the heat.

It is interesting to notice that although the cause (or perhaps the reason) is explicitly given in (108) and there does exist a corresponding causative '*xamilono*' (lower<sub>TR</sub>) e.g. '*xamilose ta matja tu*' (he lowered his eyes), no corresponding active-causative construction exists for (108), i.e.:

- (109) *\*i zesti xamilose ta fila tu fitu*  
 the heat lowered the leaves of the plant

is ungrammatical. Apparently 'the heat' in (108) is not deemed a salient enough cause to acquire the status of an agent.

The last examples of mediopassive verbs involve '*anevazome*' (be taken up) and '*katevazome*' (be taken down). The complete paradigm is as follows:

(a) transitive (causative): 'anevazo' (take up), 'katevazo' (take down)

(b) intransitive active form: 'aneveno' (go up), 'kateveno' (go down)

(c) (intransitive) mediopassive form: 'anevazome', 'katevazome'.

Although (c) verb-forms do not normally appear with an [apo NP]PP where the NP has the characteristics of a prototypical agent, they can nevertheless be considered true passives: all instances of intransitive motion of this kind not carried out by a prototypical patient are understandably expressed with the (b) forms.<sup>9</sup> So, cases of indirect causation are expressed with the active form intransitive, e.g.:

(110) *anevikame pano apo tis fones tu* (V=*aneveno*)  
we went up(stairs) 'from' (because of) his screams

or the active form transitive-causative, i.e.:

(111) *mas anevase pano me tis fones tu* (V=*anevazo*)  
he made us go upstairs/took us upstairs with his screams

but not with the '-ome' form. What is perhaps more interesting, though, is that even prototypical patients (objects not possessing a self-moving mechanism, in this case) may well appear with the (b) rather than the (c) forms, e.g.:

(112) *i valitsets anevikan kjolas sto aeroplano* (V=*aneveno*)  
the suitcases have gone up already onto the plane.

As already argued at the beginning of this section, the choice between a (diminished) passive and an active form intransitive is basically a matter of degree of 'agent-defocusing'. The degree of agentivity of a particular predicate, even if it is an instance of a

genuine passive will have to be decided independently of the type of implied (but absent) agent. It will rest with a specification of the types of objects undergoing the motion described and the extent to which they may be shown (in specific sentences) to exercise control over the event, have intention to carry it out or undergo it, in short with a specification of what have been established as scaled properties composing agentivity.

Notes on Chapter 3

1. There is, of course, a difference between some natural forces at least, and other kinds of 'quasi-agents', in that the former can be understood as 'events' while the latter can be interpreted as reflecting extensions of human motion. So, for instance:

(1a) *to spiti gremistike apo to sismo* (V=*gremizome*)  
the house fell/was pulled down from/because  
of the earthquake

with a mediopassive verb '*gremizome*' (fall, be pulled down) has a parallel in (1b):

(1b) *to spiti epese apo to sismo* (V=*pefto*)  
the house fell from/because of the earthquake

with an intransitive verb '*pefto*' (fall). This possibility does not arise in the case of (2a) where the agent is human, volitional, etc., and can, therefore, only appear in an [apo NP]PP related to a passive understanding of '*gremizome*' (be pulled down):

(2a) *to spiti gremistike apo tin astinomia* (V=*gremizome*)  
the house was pulled down by the police

(2b) \**to spiti epese apo tin astinomia* (V=*pefto*)  
the house fell by the police.

It is therefore suggested that '*sismos*' (earthquake), for instance, is in such cases understood as an event and can function as 'reason' or stand for cause by itself, i.e. without a supporting environment, e.g. '*eks etias tu sismu*' (because of the earthquake).

2. It must be shown that aspect is not by itself the decisive factor here (as it might be thought on the basis of these two examples). For:

(1a) *mia astrapi d̄iesxise ton urano* (V=*d̄iasxizo*)  
(a flash of) lightning crossed the sky

does not have a corresponding

(1b) \**o uranos d̄iasxistike apo mia astsrapī* (V=*d̄iasxizome*)  
the sky was crossed by (a flash of) lightning

but a much more emphatic description of a similar situation

(2) *olokliros o uranos, d̄iasxistike apo* (V=*d̄iasxizome*)  
*astrapes*  
the whole sky was crossed by  
(flashes of) lightning

is acceptable, presumably because it is in this latter case felt that the sky is (perceptually) more seriously affected and therefore closer to the patient's prototype. This explanation is compatible with the distinctions made within 'events' (in the previous chapter) between more and less typical instances of 'punctual occurrences'. It can be thought that in (2) the event has more duration (is less of a punctual occurrence) than in (1b) and that there is, as a consequence, a lasting effect on the sky. If something is affected, it undergoes a change of state and the new state obviously has to last long enough to be registered as such. Apparently while in the case of (1b) this possibility does not arise, in (2), on the other hand, it does.

3. It is naturally assumed that manipulative causation is ruled out as a possibility for IC by definition. It is further assumed that lexical causatives will be readily interpreted as direct/manipulative if juxtaposed to explicit ones; e.g. '*d̄en ton estisa*

*eyo orθio, ton ekana aplos na staθi'* (I did not 'stand' him up, I simply made him stand) or *'ōen boro na ton valo mesa, boro omos na ton kano na bi'* (I cannot put him in, but I can make him come in). There also exists the possibility of a prototypical agent subject combining with a prototypical patient object through an explicit causative: e.g. *'i xrisula ekane tin porta na aniksi'* (Chryssoula made the door open) vs *'i xrisula anikse tin porta'* (Chryssoula opened the door). The former example is a non-prototypical description of the event and the implication is probably that the door would not open (resisted opening), so that exceptional force or a special technique was needed to get it open.

4. I am using 'simple intention' as the second point on the 'volition' scale for all these actions/events for which only context could provide evidence for particularly strong intention. This I consider necessary in order to differentiate between such cases and those of verbs necessarily implying strong (or 'emphatic' as I call it) intent, such as *'kataθioko'* (chase).
5. I consider that the theoretical assumptions made by the proponents of Prototype theory are compatible with the particular application of agentivity criteria in Lists IV and V. It must be pointed out, however, that there is no indication in the literature of whether or how such criteria could be applied in order to compare lexical units (verbs in this case) without the help of a supporting context. Pluses and minuses do present an idealization, in the sense that all linguistic data are presented in an idealized form when they appear in the form of Tables and Indices. All that can be said is that the relevant data have been at least checked against the intuitions of a number of native speakers. An x is used to indicate marginal or restricted use, disagreement between subjects and rather unprototypical uses.

6. It could be thought that the possibility discussed in connection with '*periplanjeme*' (wander) exists also for other agentive verbs. Notice, however, that (1a) is very odd:

(1a) ?*perpatusan apo laθos oδiγies* (V=*perpatao*)  
they walked because of wrong instructions

while in (1b):

(1b) *perpatisan mexri to staθmo apo laθos oδiγies*  
they walked up to the station due to wrong instructions

the crucial PP '*apo laθos oδiγies*' does not refer to the activity of walking but rather to the goal '*to staθmo*'.

7. Notice that the verbs '*δjavazome*' (be read) and '*troyome*' (be eaten) correspond to active form ones '*δjavazo*' (read) and '*troo*' (eat), respectively and that in the Present tense they can be only used as potentials. Examples of such constructions (potentials) are also offered in 3.2.1.
8. A particularly illuminating recent categorization of the whole system of MG verbs on the basis of their syntactico-semantic features, which attempts a break-away from the traditional active vs passive voice dichotomy is presented in Theophanopoulou-Kontou (1984). Within this system, intransitives that we would characterize as low in agentivity (on the basis of prototype theory criteria), e.g. '*peθeno*' (die), are understood as 'unidirectionally patient-oriented'. Verbs which can occur in genuinely passive constructions, e.g. '*skotonome*' (be/get killed), with a corresponding genuinely active counterpart (i.e. '*skotono*' (kill)) are categorized as 'multidirectionally patient and agent oriented' - the former label attached to the passive instance and the latter to the active one. This approach can be interpreted as also bringing together non-agentive intransitives with (non-agentive) passives.

9. By 'prototypical patient' here I mean objects not possessing a self-moving mechanism or not using it while the motion in question is taking place. Therefore animate subjects are compatible with the '-ome' form, provided they are being carried, for instance.

#### 4. PRINCIPLES OF CATEGORIZATION AND MINOR PROPERTIES OF MOTION VERBS

##### 4.1 Principles of categorization of motion verbs

In Chapters 2 and 3 a proposal was made as to how MGMVs can be classified with respect to what are considered here 'major classificatory features', i.e. properties relating to the S-P-E distinction, causativity and agentivity. The content of such properties will not be considered any further. Their status is, however, worth discussing as it appears in different analyses of MVs to be quite debatable.

Two main points will be made in this section. The first one involves the distinction between 'major' and 'minor' properties for MGMVs. It is suggested here, that the former exhibit different characteristics from any of the latter kind of properties which have been proposed for the analysis of similar semantic fields, e.g. English and German motion verbs (and naturally those which will be proposed as valid for MGMVs).

The second point involves the controversial issue of how such semantic fields are organized. Taxonomies for verbs and MGMVs in particular are first discussed in detail. A separate discussion of 'minor' properties proposed for MGMVs follows in the next section. The overall organization of the field under investigation and the 'non-arbitrariness of categories' are examined in the last two sections. It is also suggested that 'hierarchy of properties' is different from 'relative salience' and that tests eliciting information from native speakers are needed to investigate both relative salience and the psychological validity of the proposed types of organization. (How this is to be effected is the concern of the next chapter.)

What are posited here as major properties for MGMVs have been shown to exhibit the following characteristics. They are:

- (a) Classificatory, i.e. applicable to large areas of the vocabulary and capable of categorising many different verbal domains. The S-P-E distinction, causativity and agentivity are evidently relevant for a classification of almost the whole of the verbal vocabulary of MG or English.
- (b) Relative/graded, i.e. possessed by verbs to a higher or lower degree. The fact that agentivity and transitivity are graded properties is recognized in Hopper and Thompson (1980, 1982) and Givón (1984). S-P-E is also shown here as involving a continuum.
- (c) Involving/subsuming other features, e.g. duration, ingression, intention. The relevance of 'intentionality' for an assessment of agentivity and of 'duration' for the S-P-E distinction has been demonstrated in Chapters 3 and 2 respectively.
- (d) Characterising predications mainly (and verbs through predications) and therefore linked to grammatical categories, like transitivity, aspect, etc.

'Minor' properties relevant to the specific domain under investigation do not exhibit either the first or the fourth of these characteristics. Their relation to (b) and (c) will be shown to vary and depend on the nature of each specific property. This issue will be discussed in section 4.2.

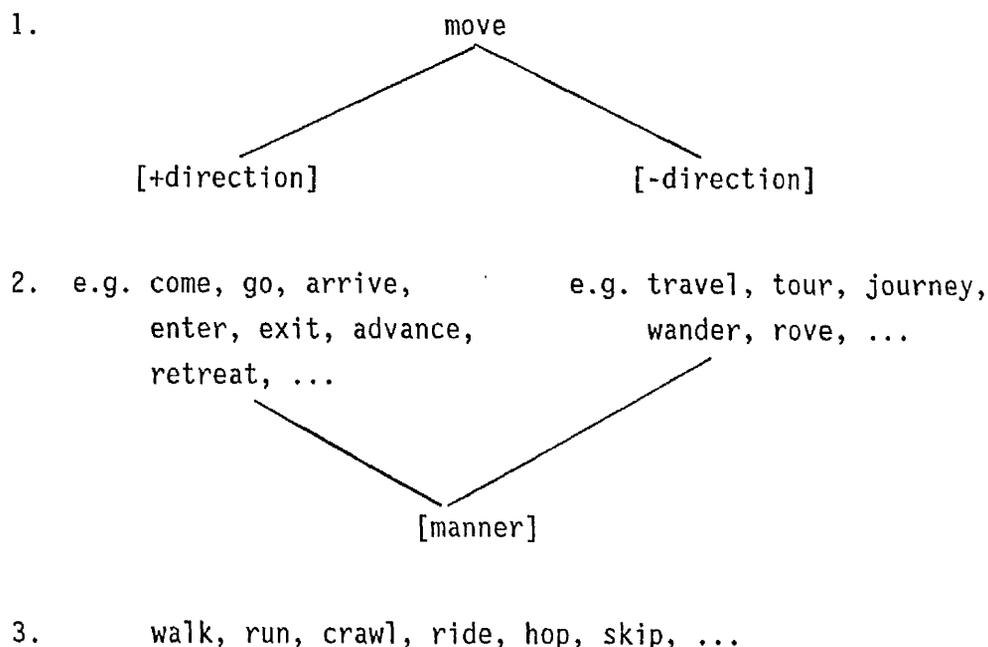
The distinction proposed here between major and minor properties has a close parallel in Putnam's (1975) distinction between syntactic and

semantic markers, on the one hand, and stereotypical properties on the other. Putnam's semantic markers are "category indicators of high centrality" and constitute "part of a widely used and important system of classification" (p.267). An example of the sort of semantic markers Putnam uses for natural kind terms is offered in 1.3 where the normal form description for 'water' is presented. Natural kind terms clearly involve a completely different type of linguistic competence than motion verbs, so the parallel cannot be too close. Besides, the link between major classificatory properties for MVs and grammatical categories such as transitivity and aspect makes it plausible to think of them as syntactico-semantic. So no distinction parallel to Putnam's syntactic and semantic markers is envisaged. They are also shown to be graded (unlike semantic markers for natural kinds) and to subsume other features which share characteristics with those properties which are considered here as minor properties.

A serious problem within the limits of the present study is the status of what may be considered 'in between' properties and in particular those characterizing whole semantic domains. A case in point is 'motion', which is necessarily implied by all the verbs included in the semantic field under investigation, and may be thought of as a higher level property in relation to specific and (by implication) minor features of motion. Adhering to the distinctions set out here between major and minor properties, 'motion' appears as a genuinely 'in between' case. It may be thought of as classificatory (although it is not of the same status as S-P-E, agentivity and causativity) since it characterizes a relatively large semantic field. Notice that Pulman (1983:108) considers the possibility of including 'move' in the set of 'primitive' verbs such as 'cause', 'make', 'become', 'act' and 'say'. Some of these verbs correspond to what are posited here as major properties (namely 'cause' and 'act'). Gradedness is not, however, a characteristic of 'motion', in the sense that all the verbs investigated here are understood as possessing this feature and are not distinguished as more or less motional.<sup>1</sup> In this respect, at least, the difference between 'motion' and S-P-E or causativity and agentivity is quite dramatic.<sup>2</sup> The question is therefore raised whether a hierarchy of

features can be established within the field under investigation. This question requires careful consideration.

A partial taxonomy of MVs with corresponding hierarchical features is attempted by Nida (1975:95-7) and is worth considering in detail. Nida's example can be diagrammatically presented as follows:



This example is used by Nida to illustrate the point that there are a number of restrictions on semantic subordination: that one cannot journey by hopping or skipping, although walking is a possibility; and that although wandering is usually done by walking, one can also wander by train (at least according to Nida).

To fully appreciate the problem with this type of approach, one must also consider a further comment Nida makes (ibid.) concerning the status of 'travel'. He argues that since 'travel' does not specify 'direction', one could assume that it is more inclusive than the terms 'come' and 'go'; yet there are many contexts in which these latter terms are used in a more general sense than 'travel': "a term such as 'go' may be used in such widely different contexts as 'go to the dining room' or 'go to Europe' while 'travel' would fit only the latter of these contexts" (ibid.).

It is not in the least obvious why 'manner' specifying MVs should be classified as third level categories, i.e. lower than verbs which are 'general' in that they do not specify 'manner'. On the other hand, verbs specifying 'direction', even if they are superordinate as individual items to other MVs (including some verbs specifying 'manner'), are not to be understood as hierarchically higher as a set to the whole set of 'manner' specifying MVs. In other words, it cannot be a priori established whether 'direction' is more inclusive (generic) than 'manner'.

If 'absence of certain features/specifications' were to be equated with 'relatively higher level' in MV-taxonomies, then we would expect verbs lacking both a 'manner' and a 'direction' specification to be the most inclusive ones and all other MVs to act as their genuine hyponyms. In practice this would mean that the most inclusive MVs in this set would be 'wander' and 'rove'.<sup>3</sup> In effect, it is obvious that the opposite holds. The intuition that 'travel' and 'tour' are not really less specific than 'walk' and 'run' (as Nida's general schema would have them) is corroborated by the fact that the former are precisely the ones offering fewer possibilities of combination with 'manner' specifying MVs: They were touring crawling/hopping/skipping are particularly odd sentences, if not unacceptable.

Although the terms appearing in Nida's schema are shown not to be taxonomically organized, other terms within the field of MVs do exhibit hyponymic relations. In what follows, it will be demonstrated that the whole field is neither a perfect taxonomy, nor a perfect paradigm, but has characteristics of both types of organization. Specific subsets which constitute taxonomies seem to have properties quite different from those of well-established noun taxonomies. It is suggested, that these properties are not specific to the field of MVs, but are probably characteristic of verb taxonomies in general. In the following section they are considered in some detail.

#### 4.1.1 Taxonomies for verbs

The main points that need to be raised in distinguishing noun taxonomies (of the kind best known from ethnoscientific studies) from verb taxonomies, involve: number of taxa, number of levels of inclusiveness, cross-classification, covert categories, relative abstraction of levels and the 'type of' or 'kind of' relationship considered as characteristic of taxonomically subordinate terms, sometimes indistinguishable from class-inclusion (Lehrer 1974:20,23) but sometimes contrasted to simple hyponymy (Rhodes 1983:2,18).

In its most general understanding, a taxonomy involves simply a set of words related through superordination that can be represented as a tree diagram, so that any number of words can appear at the same level. Since, however, different writers and different disciplines have tended to use 'taxonomy' to imply different constructs, it seems necessary to start this presentation with 'perfect'/genuine folk taxonomies of the kind offered in Berlin, Breedlove and Raven (henceforth BBR) (1968, 1973), Pulman (1983) and Rhodes (1983). Such strict taxonomies involve:

1. Five levels of inclusiveness at most
2. Only one possible hierarchy of taxons
3. No cross-classification

The terms 'category' and 'taxon' are used here interchangeably and so are 'word', 'taxon-label', 'term'. The labels used for the different levels of inclusiveness differ from one taxonomist to the other, so in the example which follows immediately (and which is partially reproduced from Pulman 1983:84), the terminology of BBR (1973), Rhodes (1983) and Rosch (1977b) is juxtaposed for easy reference. For the discussion, Rhodes' terms will be used, as being less burdened with ethnobiological implications than BBR's.

Level		<u>BBR</u>	<u>Rhodes</u>	<u>Rosch</u>
(0)	PLANT	unique beginner	inclusive	
(1)	TREE FLOWER VEGETABLE	life form	kind	superordinate
(2)	OAK WILLOW PINE	generic	generic	basic level
(3)	DWARF WEeping WHITE	specific	specific	subordinate
(4)	STRAIGHT- CURLY-LEAVED (Fictional)	varietal	varietal	

BBR (1973) and Rhodes (1983) contend that the most inclusive level is often covert, and that this may also be the case with a number of taxa at other levels. They also observe that some generic taxa do not belong to any kind and argue that generic taxa have a cognitively privileged status (compare Rosch's 'basic level' categories). In connection with the number of levels of inclusiveness it will be shown that in most cases only two levels (generic and specific) can be fairly easily established. Cross-classification is not only frequent, but seems to be a characteristic of verb domains. The depth of verb taxonomies and the lexicalization of categories are interrelated issues, and furthermore they link to differences between levels in terms of relative abstraction. Nida (1975:89) observes that five and six levels are not at all rare in the case of entities (nominals) but that "for events three and four levels are not too common unless we also use 'high level meanings', e.g. event, action, movement". It is rather obvious that even the commonest kind of events are more complex than such perceptually and/or functionally distinct individuals as 'trees', 'dogs' and 'chairs', commonly appearing in noun-taxonomies. It is equally obvious that 'high level' units of the type Nida mentions are also more complex than noun-categories which correspond to them (in terms of levels of

inclusiveness) such as 'animal' or 'plant'. The question is not whether one is allowed to use 'high level meanings' but whether they could possibly lexicalize in the way plants and artifacts do.

As already demonstrated, such high level properties are graded and sometimes linked to specific predications and specific verb forms. In the domain of MGMVs, for instance, 'states' can be only related to Perfect b' participles (as suggested in Chapter 2). This means that one would have to establish different taxonomies for different verb forms, which is both intuitively wrong and methodologically undesirable. Even if one concentrates on a particular verb form (e.g. Pres. If.) and an agreement is reached to the effect that 'tremo' (tremble), for instance, is a 'process' (as already suggested), how does one lexicalize 'process' to serve this purpose? For 'events' the usual substitute is DO. But DO, HAPPEN, CAUSE and the like, require a prior agreement as to their exact content before they can be used in any actual verb taxonomy. They are technical terms of a completely different nature from 'generic' and 'specific' level categories such as 'walk' and 'stride', i.e. 'natural', non-technical lexical items. It is arguable that the inclusion of technical terms such as 'reptile' or 'mammal' in noun taxonomies also results in 'hybrid' taxonomies, i.e. taxonomies which are neither purely technical nor purely 'folk'. Notice, that DO and HAPPEN are even more abstract and more technical than the above mentioned nouns. They are no more examples of lexicalization than covert categories are. They are bundles of features/conditions/properties. Their hierarchical or non-hierarchical relations to other features can be discussed on the basis of Lounsbury's (1964:1086-7) principles which will be dealt with in a subsequent section. The point is, however, that they cannot acquire the status of actual lexical items, i.e. labelled taxons within a taxonomy.

It is therefore argued, that it is unlikely to have terms on more than two or three levels of inclusiveness in verb domains, without including technical terms and/or covert categories. Covert categories also raise a number of problems. The standard taxonomists' justification for setting up covert categories is that a series of 'sorting tasks' performed by different groups of subjects

on the same set of terms - each group getting different instructions on the number of clusters they should form - can yield hierarchical structures, some levels of which are unlabelled. These unlabelled taxons constitute covert categories. If such a practice is followed, the psychological reality of covert categories cannot be questioned. What can be questioned is their exact status. What we do know about them is that the corresponding groupings of objects are not lexicalized. It seems therefore plausible to assume, that covert categories are combinations of properties, similar to technical terms and sharing their problems. For the moment, some covert categories, the content of which can be spelled out, are included in List VI, which presents as many taxonomic relations as I have been able to detect in the area of MGMVs. In the discussion of particular taxonomically organized sets, it will become obvious that covert categories are not allotted a specific position in the hierarchy.

Verb taxonomies are unanimously recognized as involving fewer taxa than noun taxonomies and this makes it already more difficult to see if a particular field is taxonomically organized or not (e.g. Rhodes 1983:10). They also involve fewer levels which renders it impossible to check certain properties suggested as characteristic of taxonomies (e.g. maximum of five levels). As can be testified in List VI, cross-classification is abundant. This is excluded by BBR (1973) for instance but allowed by more recent studies, e.g. Hunn (1982), while Lehrer (1974) also allows for overlap.

Taxonomic relations which can be fairly safely identified, involve 'generic' and 'specific' level categories. The original idea on how the inclusive term is to be identified is based, in the present analysis, on Dixon's (1971) 'nuclear' verbs and the well-established procedure of simple substitution. Dixon (1971:436) argues that the lexical verbs of a language fall into two mutually exclusive sets: nuclear and non-nuclear ones. The former type are analysable through a small set of rather general and well-motivated semantic features (some of which are likely to underlie categories in the grammar of the language) while the semantic content of the latter type is definable through the semantic description of a nuclear verb (or a previously defined non-nuclear one) and the syntactic apparatus of

the language. One of the clearest examples Dixon offers involves the verbs 'look' and 'stare': the former, which is nuclear, cannot be defined through some other verb, while the latter, which is non-nuclear, can be defined as 'look hard'. One does not have to agree with the componential description Dixon assumes as the only one appropriate for nuclear verbs in order to accept his main points. This division is a natural one, in the specific sense that it is not arbitrary (corroborated by the evidence he brings in from Dyaluguy and Guwal verbs). If a language has a minimum number of verbs it need not contain any non-nuclear ones, as it can replace them with a 'definition'. For the same reason it could not do without nuclear verbs (as they are not 'substitutable').

Since it has seemed important to include as many hyponyms as possible and given the special sociolinguistic problems of MG, already mentioned in the Introduction, terms of different origin and use as well as verbs belonging to distinct registers are included. 'Katharevousa' terms of restricted use are marked with a subscript S1 while dialectal and 'literary' ones are marked with S3. The remaining terms are unmarked. They would constitute an S2 category which is understood as the main body of what is commonly referred to as 'Koine Nea Elliniki', i.e. common/standard Modern Greek.<sup>4</sup> These unmarked terms belong to different registers. So, for instance, among the verbs roughly equivalent to 'leave' or 'set off', both '*fevyo*' and '*anaxoro*' are unmarked in List VI (Category 5). Besides covering the same conceptual area these verbs belong to 'Koine Nea Elliniki', so choice between them depends on factors related to different registers or different 'frames' (in the sense of Brown and Yule 1983:238-241, or Verschueren 1981:338). In very simple terms an important person (e.g. a politician) can be said to '*anaxori*' (set off) to London, but the same verb cannot be used in a sentence roughly equivalent to 'my brother left for school at 8:30'. In such a case '*fevyo*' (set off) would be used instead. Although an accurate application of these notions lies outside the scope of the present study, it is necessary to refer to them, as the whole issue is closely related to the discussion of basic level categories.

In connection with the presentation of the material in List VI three more points must be made. There are separate categories (e.g. 6,7) for corresponding transitive and intransitive verbs. In those cases where no cover term exists and the content of the inclusive covert category cannot easily be described, sets of verbs appear which are understood as belonging to the same natural class (henceforth NC). Cross-classification constitutes a distinct characteristic of the taxonomies presented here (as already pointed out) and terms which appear in more than one category/taxonomy are marked with CC followed by the address of the category(ies) in which they also appear (e.g. '*anarixome*' CC25 (climb)). There are many areas where class-inclusion is only partial and some of these will be discussed separately for each one of the taxonomies which will be analysed in some detail in the following section. A more acute problem which arises and requires special attention involves the determination of the level of inclusiveness of the items under investigation.

#### 4.1.2 Levels of inclusiveness and linguistically unmarked categories

As already mentioned in 4.1.1, taxonomists refer to five levels of inclusiveness, each one of which is attributed special characteristics. In this section attention is drawn to the generic and specific levels and their relation to Rosch's basic and subordinate level categories.

In BBR (1973:216) it is explicitly stated that generic level categories are "the most commonly referred to groupings of organisms in the natural environment, are the most salient psychologically and are likely to be among the first taxa learned by the child". It is fairly obvious that the generic level corresponds to Rosch's basic level of abstraction which is the level at which "categories carry the most information, possess the highest cue validity, and are, thus, the most differentiated from one another" (Rosch et al. 1976:383).

The cognitively privileged status of generic level categories seems to acquire some substance through the experiments of Rosch and her colleagues in the case of the kinds of nouns they have investigated. In one such experiment, biological taxonomies were tested using as a hypothesis the results of anthropological studies (Berlin 1971, in particular). Categories like 'maple', 'birch', 'oak' were expected to belong to the basic level and 'tree' (the inclusive category) to 'kind' (see 4.1.1), i.e. Rosch's superordinate level, while 'white oak' and 'red oak' hypothesized as 'specific' by Berlin should correspond to Rosch's subordinate level.

The test results showed that the hypothesized correspondence was wrong. The basic level of abstraction identified by Rosch on the basis of the number of common attributes provided for each term by subjects (see 1.3.2.3) turned out to be one level higher than Berlin's hypothesized generic level, i.e. 'tree', proved to be basic level rather than 'oak' or 'birch' (Rosch 1977b:214-6). The same applied to biological taxonomies for 'fish' and 'bird' also hypothesized as superordinate and proving to be basic level. These results seem to be in accordance with common sense and intuition and it is interesting to notice that hypotheses based on the intuition of the experimenters for non-biological taxonomies yielded the expected results.

Unfortunately Rosch's method of identifying basic level categories presupposes the possibility of obtaining listings of attributes for each term from subjects. As already indicated in 1.3.2.4 this task cannot be implemented for verbal notions, the latter being far more abstract and complex than the sorts of nouns used in Rosch's experiments. It is therefore necessary to turn to other related notions in order to identify the level of inclusiveness/abstraction of specific verbs as well as focus attention on the special characteristics attributed to generic level categories. The notions of 'cognitively privileged status', 'psychological salience' and the like, although intuitively correct are too vague to be used as a working hypothesis. Rosch's basic level categories may be also understood as being more frequent and familiar than superordinate or subordinate ones (Pulman 1983:125).

Familiarity and commonness or frequency of contact raise of course the question: "familiar to whom?" Interpersonal variation in how basic a term is, is obviously to be expected in any semantic field. It is quite conceivable that Gricean principles are at work governing the choice of taxonomic level from which a term is drawn, at least for those models for which familiarity and similar notions are decisive in the choice of level of inclusiveness. Evidently there are also language and culture specific conventions, against which such principles operate. Now an analysis of the interplay of factors such as assumptions on knowledge of speaker and listener, context, situation, etc. lies outside the scope of the present study. Nevertheless, the implications of such considerations for determining the level of inclusiveness of verbs have to be pointed out.

Consider as an example a subset of category 5 in List VI involving verbs all of which can be used for a ship sailing off:

*'apopleo', 'anaxoro', 'fevyo', 'salparo'.*

As already mentioned, *'anaxoro'* and *'fevyo'* are not restricted to sailing (off) and belong to different registers. Similarly *'apopleo'* is formal and may be considered technical. Notice that radio and television broadcasts may use *'apopleo'* but are more likely to use *'anaxoro'* instead. The only term which is sociolinguistically marked here (S3) is *'salparo'*, considered somehow dialectal, very 'popular' and therefore perhaps not part of 'Koine Nea Elliniki' (although it is not uncommon in novels or translations of film-scripts).

On intuitive grounds, at least, there can be little doubt that for specialists or non-specialists, educated or non-educated native speakers the most 'cognitively privileged', 'psychologically salient', frequent and familiar verb in the set is actually *'fevyo'*, which is also the one first learned by the average child. What are the consequences of these observations in terms of levels of inclusion? Following Dixon (1971), since *'anaxoro'* and *'fevyo'* cover the same conceptual ground and the remaining verbs can be 'defined' by referring to them, they should appear on the same level.

Following Verschueren (1981), differences in register are accountable for in terms of frames and therefore each one of these verbs is basic level for a different subset of the population: *'apopleo'* for navy officers, *'salparo'* for sailors, *'anaxoro'* for educated Greeks with a strong tendency towards pomposity or television broadcasting personnel at work, *'fevyo'* for people who have never travelled by ship and more importantly for anybody who has no reason to make any of the discriminations implied by and conveyed through the other verbs. In this sense it could be argued that *'fevyo'* alone is 'linguistically unmarked'.

Words used in normal everyday speech, which do not require special contextual features to be used appropriately, and carry no implications or affective overtones are termed 'linguistically unmarked' in Cruse (1977). The neutral quality of such words is explained by Cruse on the basis of well-known Gricean principles and R. Brown's notion of a level of 'maximum utility' (ibid.:155). Cruse considers the relation between taxonomically linked words such as 'animal-dog-spaniel' and observes that it is more often important that a spaniel belongs to the class of dogs than that it belongs to the class of spaniels. In this sense 'dog' represents the 'neutral level of specificity' (ibid.) and this neutral quality or linguistic unmarkedness is said to be inherent in certain items. Such items belong probably to Rosch's basic level of abstraction.

In a given context a verb such as *'apopleo'* or *'salparo'* (both equivalent to 'sail away') will be the normal way to describe the same event and can therefore be understood as a basic level term in that particular context. This does not mean, however, that *'apopleo'* and *'salparo'* are not subordinate to *'fevyo'*. A taxonomy can be established independently of which verbs are most normal, familiar or frequent in particular contexts. The obvious requirement is, that the term posited as higher level than specific or subordinate, should have the well known characteristics (from traditional structuralism) of covering a wider conceptual area than those terms posited as lower level ones, in which all the latter are included. If the hypothesized subordinates are used correctly (i.e. appropriately), their inclusion relations can be assumed to be part of native

speakers' competence. Provided the term posited as inclusive carries the additional characteristics of being linguistically unmarked, frequent, familiar and indisputably primary, it can be considered as an instance of Dixon's (1971) 'nuclear' verbs, Rosch's basic level categories, or the generic level taxa of traditional taxonomists. These (additional) properties may also characterize verbs appearing as subordinate in the taxonomy; the difference is, of course, that these latter verbs are not inclusive.

The most important issue in the light of Prototype theory remains of course the observation that subordinate categories are not equidistant from the inclusive one. Some of them are judged as more characteristic of the inclusive category name than others. We cannot know, a priori, in the case of verbs, what renders subordinate categories more or less prototypical of the category name: Rosch's method, which is again based on counting attributes provided by subjects, is inapplicable. Therefore, commenting on the content of the various taxonomies, proposed here for MGMVs, factors possibly contributing to (relative) prototypicality will be pointed out and in particular: (a) linguistic markedness and (b) relative class inclusion. For unlike biological categories, verb taxonomies may involve partial inclusion. Besides these, relative salience rather than number of common features seems to be of great importance, an issue which will be discussed in the following section, dealing with 'minor properties' and especially after a presentation of relevant test results (in the next chapter).

In order to keep this preliminary discussion to what is only necessary for the presentation of the taxonomies, a number of points simply mentioned so far will be taken up again and discussed in more detail in the analysis of the specific material examined here. List VI contains both the taxonomic sets and the natural classes proposed for MGMVs, but only those taxonomies which seem to exemplify the most acute problems arising here are discussed in detail in what follows.

#### 4.1.3 Taxonomic sets proposed for Modern Greek motion verbs

As already mentioned, 'move' could be a candidate for an intermediate level in a general taxonomy of MVs. It must be pointed out here that the corresponding lexicalized taxon in MG, namely '*kunjeme*' (move<sub>INTR</sub>), can hardly be understood as a direct inclusive term of change-of-location verbs, as it is normally used to imply change-of-position/partial motion. Therefore intransitive '*kunjeme*' and transitive '*kunao*' appear in different taxonomies (1 and 2) involving verbs which imply motion but no change-of-location.

The only possible lexicalized superordinate for a number of change-of-location MGMVs is '*piveno*' (go) which is not, however, equivalent to the English superordinate TRAVEL (for the status of which there also exist problems as it differs from the common English verb 'travel'). The first problem with '*piveno*' (go) - set 3 in List VI - is that most of the terms that could be posited as its hyponyms, could be also hyponyms of '*erxome*' (come). In other words, though it looks as the most general verb in the set under consideration, it does not have that status, because it contains a deictic component which is not present in the vast majority of the remaining verbs. A further problem emerges if one applies the standard substitution tests: '*piveno*<sub>1</sub>' (go) requires a goal specification, which is not necessary for most of its possible hyponyms. If both '*piveno*<sub>1</sub>' (go) and '*erxome*' (come) are put at an inclusive level, two possible sets of hyponyms could appear as candidates for the hypothesized taxonomy. The first one is included in List VI:

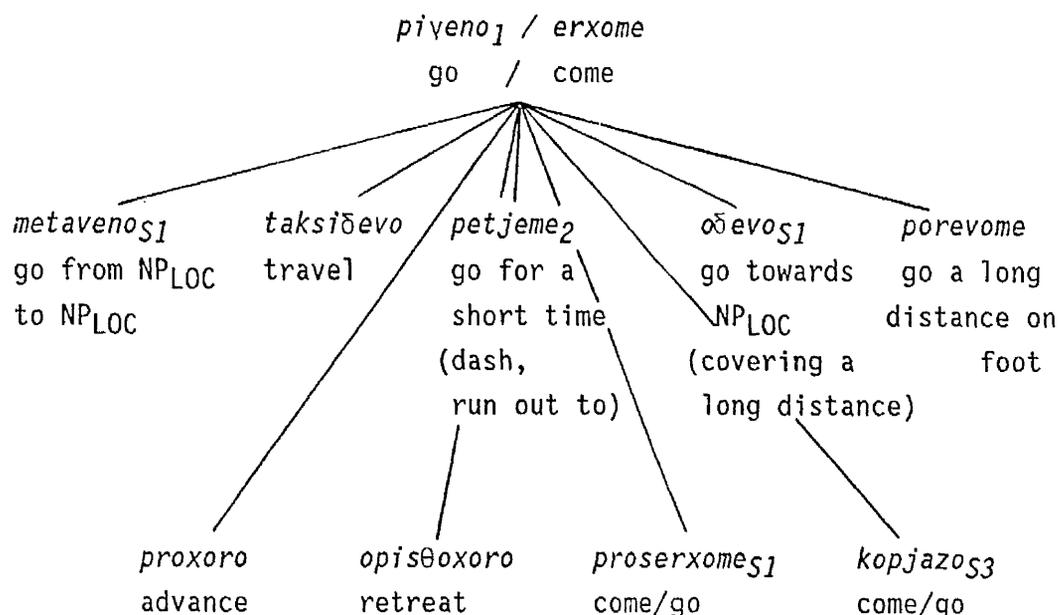


Fig. 1

Of these hyponyms only '*metaveno*' corresponds to '*piveno*' and not to '*erxome*', while '*proserxome*' and '*kopjazo*' are properly included in '*erxome*' only. The remaining verbs could be hyponyms of either supposed superordinate, a situation not likely to appear in noun domains.

In terms of collocational patterns, notice that '*porevome*', '*o1evo*', '*proxoro*' and '*opis1oxoro*' do not necessitate a goal specification; if one does appear, it is introduced with a directional preposition equivalent to 'towards', namely '*pros*'. The same situation is evident if a different set of verbs is posited under this 'twin' inclusive category, namely 'manner' specifying verbs, such as: '*perpatao*' (walk), '*sernome*' (crawl), '*kilao<sub>1</sub>*' (roll), '*petao<sub>1</sub>*' (fly), '*vlistrao*' (slip, slide). Some of the terms of both sets appear as inclusive to other categories (e.g. '*perpatao*' (walk), or '*proxoro*' (advance)), and what is more important, a number of them appear to possess the characteristics suggested here as relevant to basic level categories. This means that '*piveno<sub>1</sub>*' could be a

candidate for the first level of inclusiveness (life-form, i.e. kind/superordinate), its immediate hyponyms (of both sets) could be 'generic' level and their own hyponyms would be 'specific' level.

Notice, however, the complications arising for a massive taxonomic organization of this type. It could be claimed that 'manner' specifying verbs might also be considered as hyponyms of 'general' verbs, such as those appearing in Fig.1 and many others such as: 'aneveno' (ascend), 'akoluθo' (follow), 'beno' (enter), in short any motion verb which is not marked for 'manner'. If such a solution is adopted, 'piveno' (go) would be level 1 (kind), all verbs which do not specify 'manner' would be level 2 (generic/basic), 'manner' verbs would be level 3 (subordinate/specific) and their hyponyms would be level 4 (varietal). The undesirability of such a solution is already noted in connection to Nida's proposal which is similar, in a way, to this schema - see 4.1. Such a schema would wrongly predict that sentences such as: '??taksiðeve sernomenos' (he travelled crawling) are acceptable (which they certainly are not). It would also imply that 'perpatao' (walk) is lower level than highly specific terms such as 'trivirizo' (roam around). What is worse, 'perpatao' (walk) might even have to appear at a lower level (i.e. 4=varietal), since 'proxoro' (advance), for instance, has its own set of hyponyms (see 35 in List VI), which would have to appear on level 3 (generic/basic level). Such predictions are intuitively felt to be wrong and both collocational and other substitution considerations would have to be abandoned in more cases than not.

In short, although the status of 'piveno<sub>1</sub>' (go) is certainly different from that of most other change-of-location verbs, it is more plausible to consider both 'piveno' and 'erxome' appearing immediately under a covert category involving 'change-of-location', and Fig.1 sub-taxonomy as including all their (more/less clear cases of) hyponyms. If simple substitution is the crucial criterion, then 'erxome' (come) has to appear on the same level with 'piveno<sub>1</sub>'. It is, however, felt that in this deictic pair, 'piveno<sub>1</sub>' is somehow the less marked member. The validity of such judgments can only be checked through relevant tests, some of which will be discussed in the next chapter.

The taxonomic set headed by 'perpatao' (walk) and 'vaðizo' (walk) needs to be examined in some detail as it contains a lot of hyponyms to these inclusive terms and provides examples of most of the problems discussed from the theoretical point of view in the preceding sections.

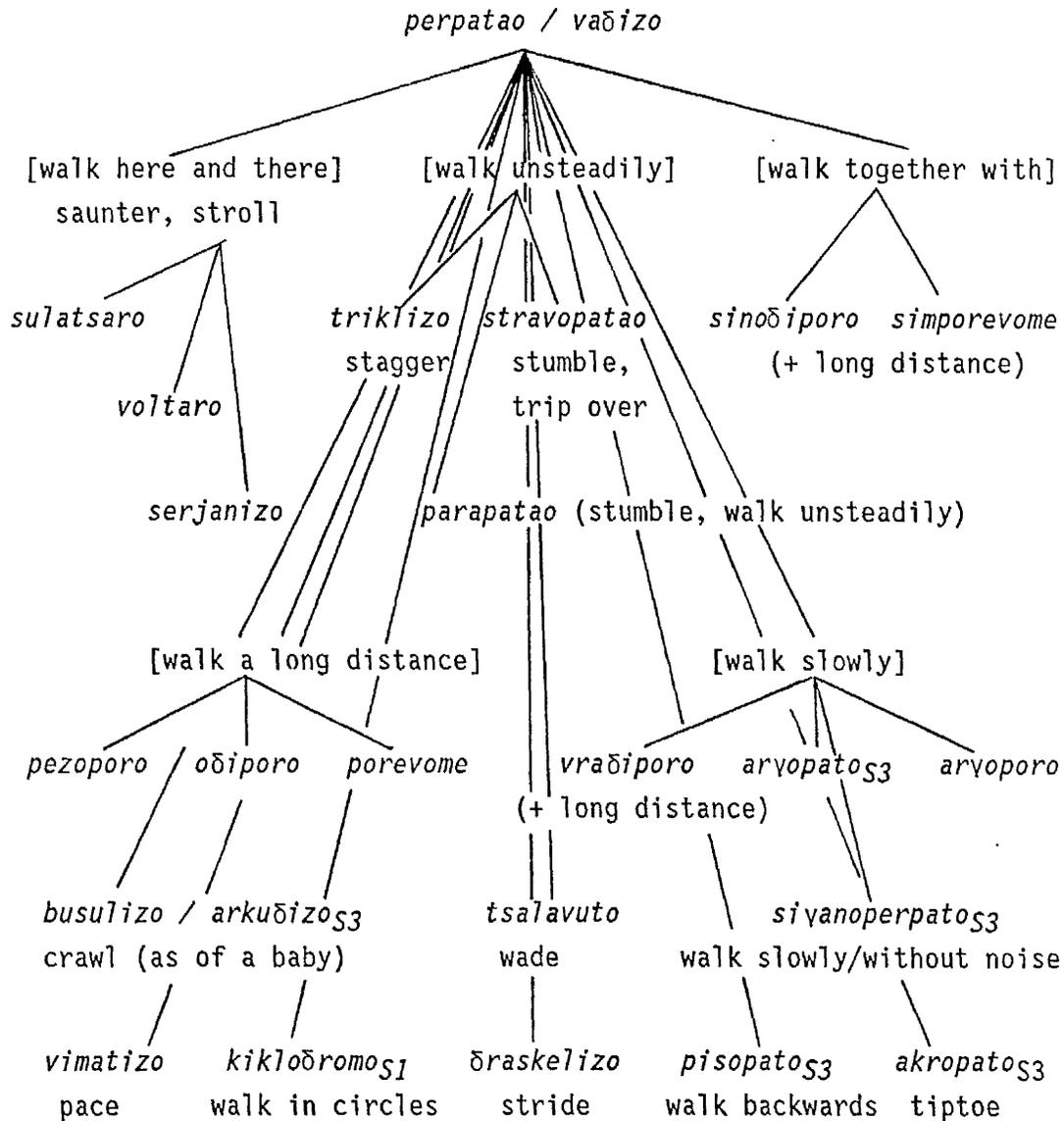


Fig. 2

To start with, since both 'perpatao' and 'vaðizo' cover the same conceptual area, they are tentatively put on the same level

(hypothesized generic/basic level). For some speakers, at least, 'perpatao' and 'vaðizo' are thought of as belonging to different registers and in that case 'perpatao' is the unmarked member of the pair. If such considerations are allowed to play a role in the organization of the taxonomy, 'vaðizo' could appear as a hyponym of 'perpatao'. The cost is not very great. It is quite possible that 'vaðizo' is the most characteristic kind of 'perpatao', i.e. its most prototypical instance. Therefore, it may be considered equally basic level with 'perpatao' and move one level up.<sup>5</sup>

Considering now the status of the proposed covert categories in Fig.2, notice first that: 'sinoðiporo' (walk a long distance together with) and its near-synonym 'simporevome' may be also classified under the next covert category, namely [walk a long distance], or appear as hyponyms of the verbs of this latter category which are morphologically related to them. Notice also that if covert categories are part of the hierarchy, the blatantly wrong prediction is made that verbs such as 'triklizo' (stagger) or 'porevome' (walk a long distance) are on a lower level of inclusiveness than 'pisopato' (walk backwards) or 'kikloðromo' (walk in circles), simply because 'triklizo' (stagger) does not happen to belong together with any other term(s) of the taxonomy.

Covert categories are useful for grouping together items which are on the same taxonomic level and which have an obvious common characteristic, i.e. words which form a natural class but exhibit no taxonomic relations. Within such natural classes certain items may be linguistically unmarked with respect to the remaining members of the same class. In Fig.2 very few such cases can be identified: 'triklizo' (stagger), 'parapatao' (stumble) and 'porevome' (walk a long distance). The same, however, applies to items which are not under a covert category.

Notice that, 'vimatizo' (pace), 'ðraskelizo' (stride) and 'busulizo' (crawl (as of a baby)) are also linguistically unmarked compared to other hyponyms of 'perpatao', such as 'pezoporo', 'oðiporo', 'vraðiporo' which are high register, and the items marked S1 or S3

which are not part of most speakers' active vocabulary. All the suggested hyponyms of *'perpatao'* are, however, on the same taxonomic level. The extent to which their being more marked linguistically affects their distance from the inclusive category can be discussed only after prototypicality test results are obtained.

Notice, finally, that many items of this set participate in other taxonomies as well. The points of cross-classification are marked in List VI. To mention a few, notice that *'porevome'* (walk a long distance) is also part of the previous taxonomy (Fig.1); *'busulizo'* and *'arkuḏizo'* both implying 'crawl (as of a baby)' can also appear together with *'sernome'* (crawl) in set 25; *'pisopato'* (walk backwards) appears also in a taxonomy involving backward motion in general, i.e. under *'opisθoxoro'* (move backwards); the set of verbs implying 'walk here and there' appear together with *'triyirizo'* (go here and there, roam around) in set 18, etc.

Another large taxonomy, which includes a lot of hyponyms to the hypothesized inclusive term and allows a number of intermediate covert categories, is headed by *'fevyo'* and *'anaxoro'* both of which are equivalent to 'leave or set off'. It is suggested that only *'fevyo'* (leave) in this taxonomy represents the level of specificity which is "least motivated contextually" in the sense of Cruse (1977:156), and that *'anaxoro'* (depart) is linguistically marked although it covers a similar conceptual area with it (as pointed out in the preceding section). Therefore only *'fevyo'* (leave) is understood here as a basic level category.

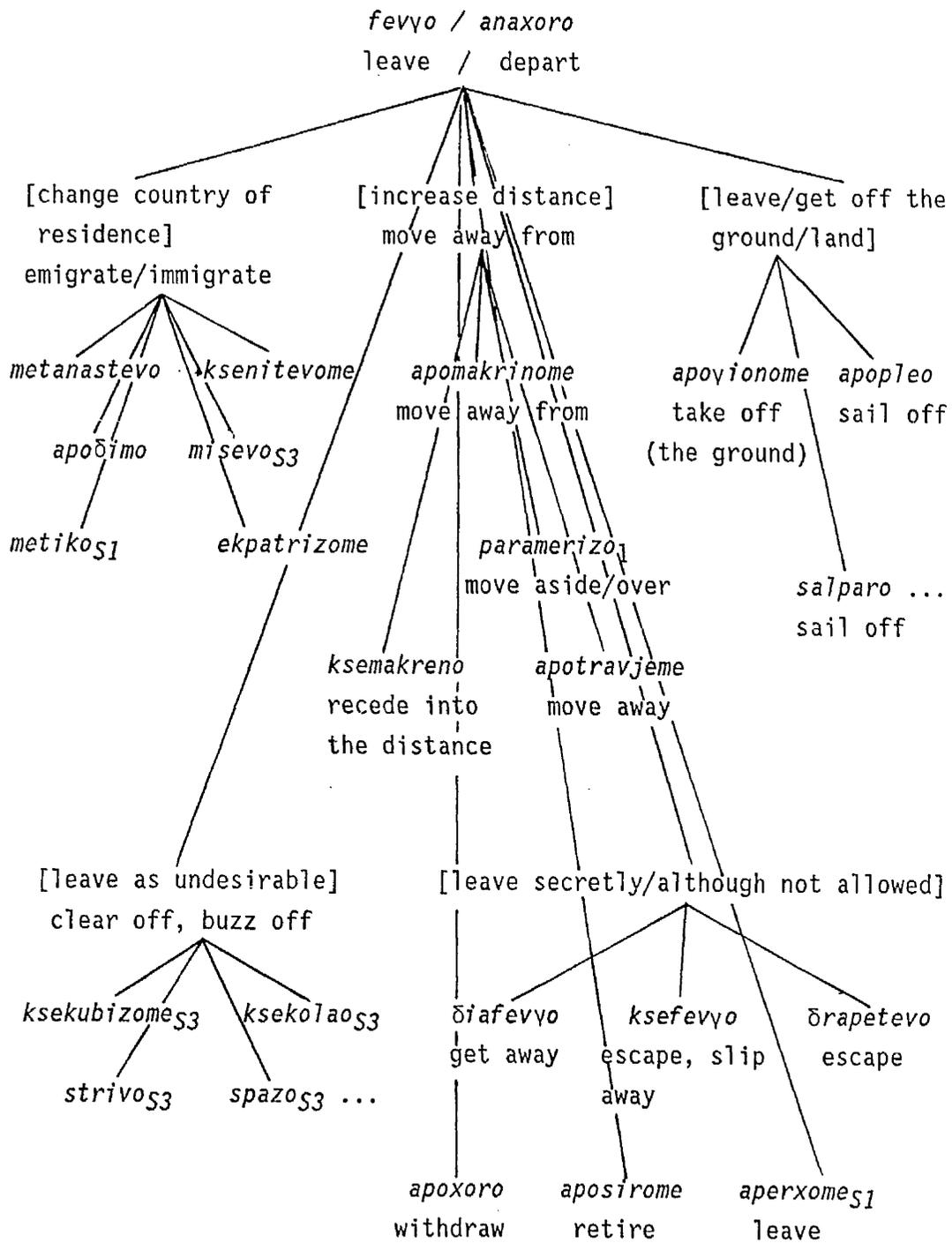


Fig. 3

It is further suggested that some of the subordinate categories in this taxonomy are also linguistically unmarked compared to other items which cover a similar, if not identical, conceptual area with them. This means that *'metanastevo'* (emigrate) is a linguistically unmarked term compared to the remaining verbs implying 'change country of residence', because the latter carry affective overtones, are less familiar, belong to marked registers etc. This cannot be interpreted as implying that it should be on the same taxonomic level with *'fevyo'* (leave). It may be, however, an example of a taxon moving up and labelling an otherwise unlabelled higher taxon (i.e. a covert category). This possibility is offered in Hunn (1982) without an accompanying specification of the circumstances under which a taxon can generalize in this way. Within the framework adopted here, the possibility of a subordinate category's becoming basic level is restricted to categories appearing as most prototypical of the inclusive category name, and covert categories are shown (for independent reasons) to constitute no taxonomic level. In this taxonomy, both *'apoxoro'* (withdraw) and *'aposirome'* (retire), although relatively linguistically marked (high register) seem to me more prototypical of the inclusive category (*'fevyo'*) than *'metanastevo'* (emigrate) or *'δrapetevo'* (escape), for reasons to be discussed in the following chapter. As they are not linguistically unmarked, however, the chances that either of them generalizes and appears on the same level with *'fevyo'* are few; but *'metanastevo'* and *'δrapetevo'* cannot be allowed to become basic level either, in this particular taxonomy, as they are most unlikely to be considered very prototypical instances of *'fevyo'*.

At this stage some of the factors which may play a role in the formation of prototypes in the area of MGMVs are simply pointed out and intuitive judgments are made which may not correspond to test results. The important thing to notice is that since counting attributes is not feasible, we are left with the vague notions of perceptual and social salience (Rosch and Mervis 1975:599). An attempt is made at making these notions more explicit and this can only be done in connection with very specific (and consequently very restricted) data here. The greatest disadvantage is the following: except for very few cases, it is virtually impossible to find

categories with a sufficient number of genuine hyponyms (properly included subordinates) and equally impossible to find enough hyponyms unmarked for register, so that these two factors could be constant and one would therefore have to consider only relative salience of attributes or dimensions. A case in point is the following taxonomy.

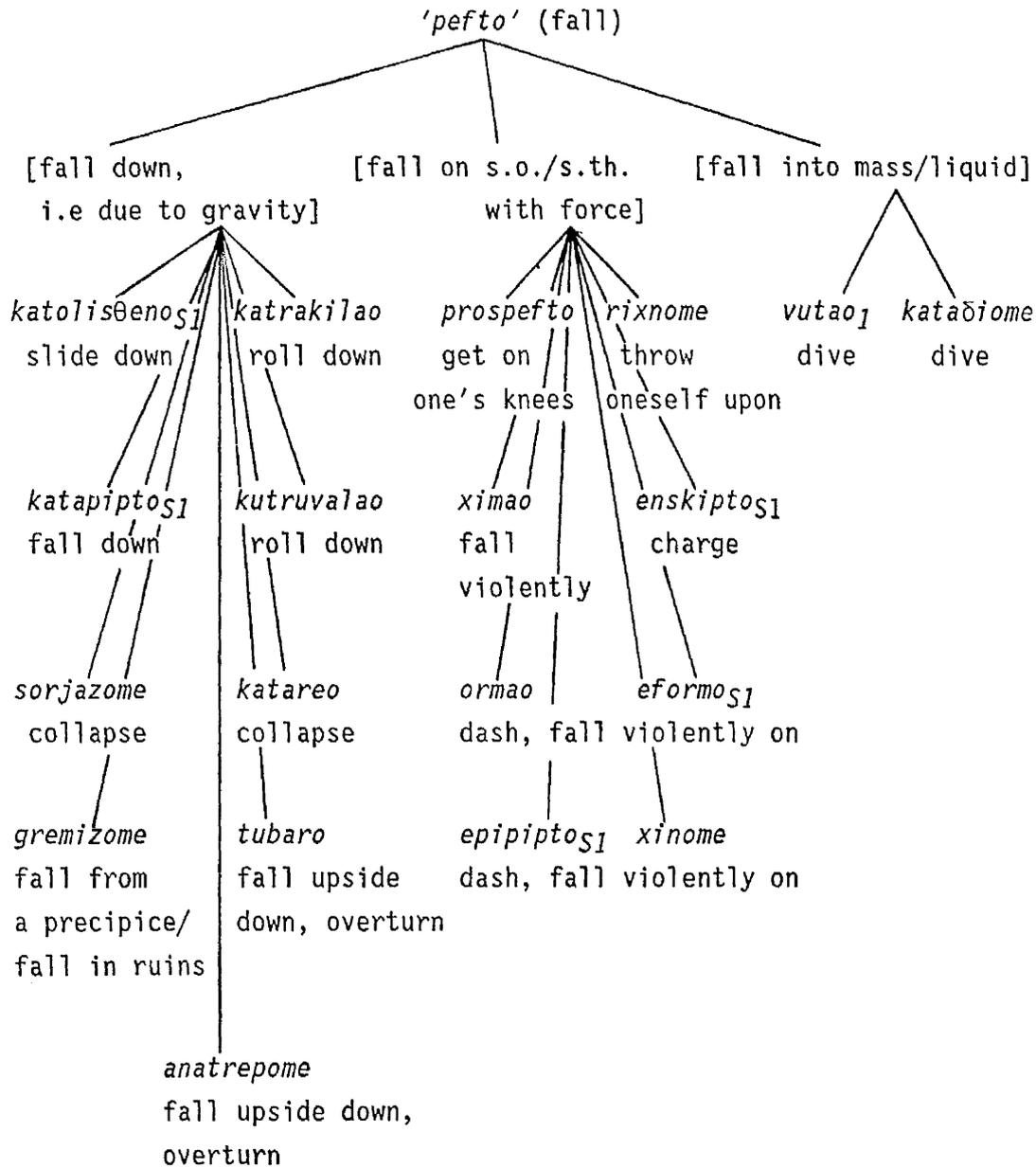


Fig. 4

Three natural classes can be identified here, two of them differentiated in terms of the cause of motion and a third one involving downward motion into liquid. As already suggested in Chapter 3, 'pefto' (fall) is primarily (prototypically) understood as implying downward motion due to gravity (hence it is low on the agentivity scale). The first covert category contains therefore hyponyms which are as a set most characteristic of 'pefto' (fall), i.e. instances of 'fall down'. The second one involves verbs implying 'fall on someone/something on purpose' and therefore correspond to a fairly unprototypical understanding of 'pefto', while the last set contains only two items, which can be replaced by 'pefto' only when the motion is into liquid and in particular into the sea, namely 'vutao<sub>1</sub>' (dive) and its near-synonym 'kataθiome'. These two items form a natural class with others not implying 'falling' but 'sinking' and appear with them under 19 in List VI. This taxonomy is therefore the clearest case of relative prototypicality of whole sets of items with respect to the inclusive basic level one. It seems fair to say that although all the suggested hyponyms are properly included in the higher one, those implying falling down accidentally and without rolling/turning are the closest to it (all other things being equal). These are 'gremizome' (fall from a precipice/in ruins), 'sorjazome' (collapse), 'katareo' (collapse), 'katapipto' (fall down) and 'katolisθeno' (slide); the last three verbs are linguistically marked. These are followed by items involving rolling/turning (the remaining items in the same covert category) and finally by those requiring a special environment (water). This may give an idea of relative distance from the inclusive category in terms of attributes and relative salience of attributes, the importance of which can be only discussed on the basis of test results in the following chapter.

The remaining sets are poor examples of taxonomic organization, in the sense that very few items are properly included in the suggested higher level one. Three more examples will be considered, starting with 'viθizome' (sink<sub>INTR</sub>).

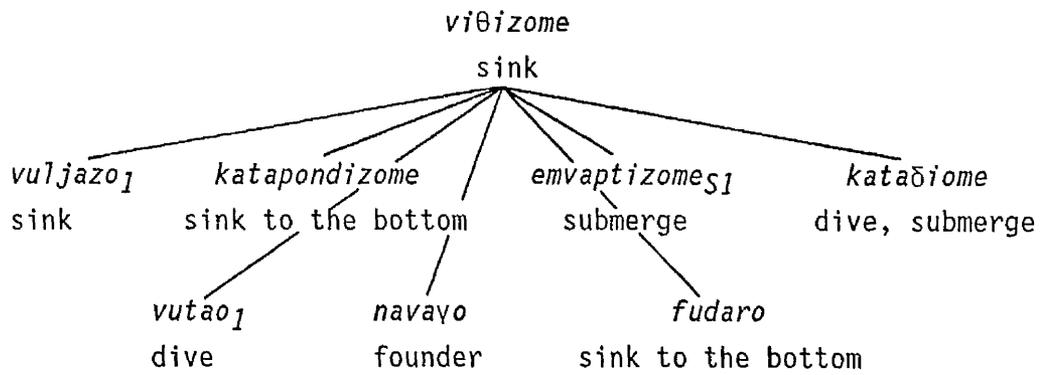


Fig.5

As can be attested in List V presenting the differences in agentivity of various non-causative MGMVs, 'viθizome' (sink) involves essentially accidental motion (due to gravity) and only marginally does it also allow for intended submersion into water. Therefore 'kataθiome' (dive) and 'vutao1' (dive) are fairly marginal in this taxonomy as they necessarily involve intention. Notice that neither can be replaced by 'viθizome' unlike the situation in the previous taxonomy where 'pefto' (fall) can replace them both, presumably because 'pefto' is less marked for absence of intention and control than 'viθizome', a fact which does not show in List V.

A further problem in Fig.5 is that 'vuljazo' (sink) is a near-synonym of the inclusive category name and certainly linguistically unmarked. The only reason why 'viθizome' appears as the basic level term in Fig.5 is that 'vuljazo' does not involve intentionality or control even marginally (see List V). If we concentrate on the prototypical understanding of 'viθizome', both verbs should appear as inclusive of the rest. Alternatively, 'vuljazo' will predictably be considered the most characteristic type of 'viθizome' and as such, it can again move one level up. This taxonomy is therefore left with only three properly included hyponyms of the hypothesized basic level term, all of which are marked for high or low register. One item 'navayo' (founder, be shipwrecked) may be considered as not properly included in 'viθizome', since unlike the latter verb it does not necessarily

imply 'sinking' - in the case of people on board a ship - but rather 'be shipwrecked'.

Transitive verb taxonomies include even fewer taxa than intransitive ones as can be attested in List VI. The best example of a transitive verb taxonomy is offered by '*piyeno<sub>2</sub>*' (take to) which appears as a twin inclusive category along with '*ferno*' (bring) for the reasons already mentioned in connection with '*piyeno<sub>1</sub>*' (go) and '*erxome*' (come).

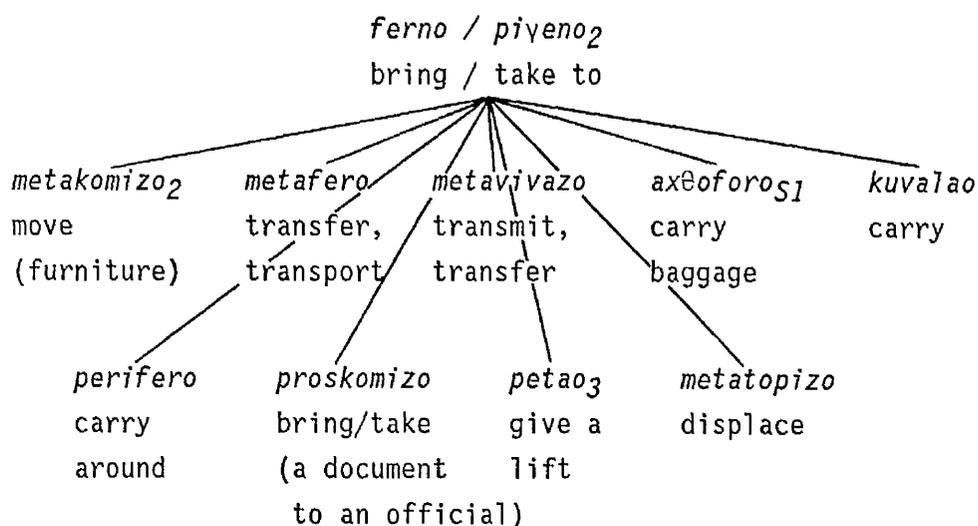


Fig.6

Three terms are marked for high register and restricted use: '*axθoforo*' (carry baggage), '*proskomizo*' (bring, take to) and '*metavivazo*' (transfer). On the other hand, '*kuvalao*' (carry) and '*perifero*' (carry around), which are linguistically unmarked, are not properly included in the hypothesized higher twin category, because unlike the cover terms, they need not imply that a destination is to be reached. A third factor is therefore brought into play (besides linguistic markedness and relative salience of attributes), namely proper (or not) class inclusion.

The last taxonomy of List VI which will be discussed here is headed by 'aneveno' (ascend) and its near-synonym 'anerxome'. The latter verb is restricted to high register and is in this respect more linguistically marked than the former one.

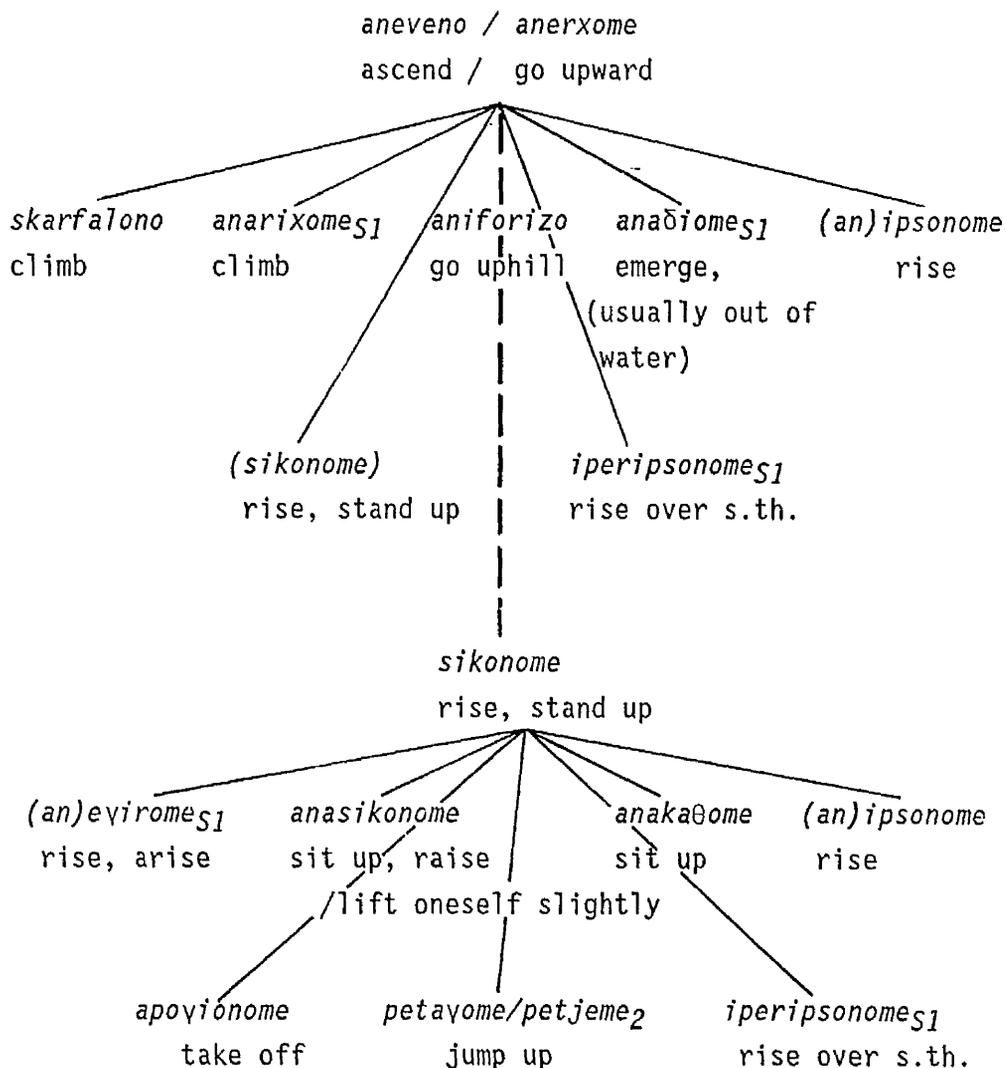


Fig.7

Only three items are genuine hyponyms of 'aneveno', namely 'anarixome' (climb), 'skarfalono' (climbe) and 'aniforizo' (go up a slope). The remaining terms, are instances of partial overlap rather than proper class inclusion. Notice that 'sikonome' (rise) and '(an)ipsonome' (rise), for instance, can only be replaced by

'*aneveno*' (go up) under specific circumstances, e.g. if the moving object is 'smoke' or 'dust'. It seems therefore preferable to consider '*sikonome*' (rise) as independent of the '*aneveno*' (ascend) taxonomy and posit it as a basic level category itself; it has all the characteristics we associate here with linguistically unmarked verbs and includes hyponyms.

Genuine hyponyms of '*sikonome*' (rise) are actually those corresponding to one of its uses, namely 'rising from a sitting or lying position', and not its 'change-of-location' use. Partial overlap rather than class inclusion is responsible for substitutability in this set. This seems to be very common in most other castes tentatively presented as taxonomies in List VI.

To give an overall picture of the remaining contents of List VI, it is important to notice that they fall under three main categories. One of them involves hyponyms which are properly included but of particularly restricted use. In most cases either their number is very small, or they are so uncommon, that no definite judgments can be made on them and their exact relation to the hypothesized superordinate. In this category fall taxonomies 16, 17, 19, 20, 21, 22, 24, 32, 33, 35, 36, 37 and 38.

Another category includes cases of partial overlap rather than genuine inclusion. Such cases are: 9 (involving only one genuine hyponym), 10 and 23.

A third category involves sets of verbs which are headed by a covert category, no lexicalized taxon. These sets are called here 'natural classes'. Such cases are 7, 12, 13, 18, 25-31 and 34. For some of these sets a lexicalized higher level category is also provided parallel to the specification of the content of the covert category (e.g. 12INTR '*spevðo*' [move rapidly]). It is, however, assumed that such categories cannot be considered basic level terms because they are linguistically marked.

On the basis of these data, it should be clear by now why it is claimed that there are only few cases with a sufficient number of genuine and unmarked hyponyms of inclusive categories in the area of MGMVs. Pulman (1983:110) makes a similar observation for English verbs in general, stating that it is "difficult to find enough basic level verbs with a sufficient number of hyponyms" in order to test whether the prototype effect obtains also for verbs.

In this section I have concentrated on establishing partial (two levels deep) taxonomies in the area of MGMVs. The main points concern the status of terms posited as generic and subordinate level and their relations to one another. It is suggested that the relevant tools for accomplishing this task are the notion of relative linguistic unmarkedness and the degree of class inclusion.

The theoretical discussion in 4.1.2 and the description accompanying it in 4.1.3, provide a basis for testing the hypothesis that the prototype effect holds for verbs (besides nouns) and suggest what factors may be responsible in this area of investigation for the formation of prototypes. Rosch and her colleagues claim that the main factor in the case of nouns is family resemblance (e.g. Rosch and Mervis 1975:599). Arguments have been offered here (1.3.2 and 4.1) in support of Pulman's (1983:122) position that the prototype effect cannot be attributed to family resemblance in the case of verbs. It should be obvious from the preceding discussion, that even in the case of what seem to be the most promising taxonomies in this field, we are in obscure territory; (a) we are focusing on differences between low level categories (Rosch's subordinate level, BBR's specific level) and (b) accurate listings of attributes are impossible to compile. As already pointed out, though, factors other than family resemblance may be substituted for it: familiarity and relative linguistic unmarkedness have already been discussed. The most promising factor seems to be the relative salience of attributes. The overall issue of which minor properties operate within the field under investigation and how they relate to one another need to be considered in detail.

## 4.2 Minor properties of Modern Greek motion verbs

The fact that English MVs have been categorized in many different and equally plausible ways within the framework of various 'checklist' theories is itself an indication that the semantic field in question is undoubtedly structured but that there are many angles from which its structuring can be approached. With this observation in mind, the task of identifying common components among MVs in MG (and probably in any Indo-European language) and bringing out their structural relations is a relatively straightforward matter. The pitfall to avoid is starting the analysis and basing the description on contrasts and oppositions between neighbouring words, which is the standard structuralist practice.

A general classification of MGMVs is presented in Lists VII and VIII which does involve some structuralist relations, the exact status of which can be only discussed after an analysis of the relevant properties involved. This classification is only one of a number of possible categorizations. Alternatives are discussed at many different points in the course of the present investigation.

The main categories identified are the following: 'causatives' of motion are considered a separate class from 'non-causatives' of motion. Both classes include 'change-of-location' (CL) and 'change-of-position' (CP) verbs, as well as 'change of orientation' (or rotary motion) ones. 'General' motion is distinguished from motion executed in a particular 'manner'. 'Directional' motion is a characteristic of most CL verbs. 'Vertical' motion is juxtaposed to motion with 'indeterminate' direction. Verbs describing path/ 'passage' and verbs involving 'dependent motion' appear in groups of their own. A separate category includes verbs marked for 'absence of destination' / 'random walk'. Properties involving the 'medium' / 'environment' in which the motion is executed, 'impetus' and 'type of object' moving will be discussed separately. Similar 'minor properties' are exhibited in both 'causatives' and 'non-causatives' of motion.

The discussion which follows concentrates on non-causative CL verbs, which are by far the most numerous. Similarities and differences between traditional approaches and Prototype theory are pointed out in the course of this analysis of MGMVs, such as gradation and central vs marginal instances. The term 'minor properties' implies here 'specific to the semantic field under investigation'. Their relationships to one another, relative hierarchy and differences in status cannot be discussed before a prior analysis of the semantic content and relations between a number of verbs understood here as involving the properties in question. The terms 'features', 'components', 'properties', 'attributes' are used interchangeably.

Since most of the discussion will revolve around CL verbs, it seems in order to refer to CP verbs first which will not be given extensive treatment. As can be attested in List VII, three groups are identified within this area. One of them includes verbs describing 'change of posture' or 'change of point-of-support', e.g. 'kaθome<sub>2</sub>' (sit), 'verno<sub>2</sub>' (lean), 'vonatizo<sub>1</sub>' (kneel). Most of these verbs refer to human body motion. A number of them are also used as statives describing the resulting position/posture, e.g. 'kaθome<sub>1</sub>' (sit/be seated), 'ksaplono<sub>1</sub>' (lie down), etc.

Whether one of these uses is more primary than the other cannot be decided on 'linguistic' grounds. Miller and Johnson-Laird (1976:549-50) suggest that since there may be no gross movement in common between standing from a sitting posture and standing from a crouching one, the action component is relatively unspecified and the resulting posture is the main global concept. On such grounds it could be claimed that the primary use is the stative one. Bodily movement 'change of point-of-support' verbs appear in List VII together with verbs sharing this property with them though these latter ones are not necessarily human body 'change of posture' verbs, such as 'kremjeme' (be hung), and 'verno' (lean). Notice that if we are looking for the most constant rather than the most characteristic property of these verbs, i.e. a necessary and sufficient condition rather than a prototypical condition of application, the term 'change of point-of-support' is more appropriate than 'change of posture'. Imagine a person's body having already acquired a sitting posture but

having no seat yet. This situation cannot be called 'sitting', since the support is still provided by the ground and one's feet as for a standing position. It does not require a lengthy explanation to demonstrate that the necessary condition involves the point of support. Whether this condition, which covers all possible cases, has any psychological validity or not is a different matter. This issue is directly linked to the difference between 'most general' and prototypical understanding of these verbs and will be taken up again in the next chapter.

A second group of CP verbs involves also 'partial' motion which does not, however, result in a different posture of the moving object. Such verbs are 'kiljeme' (wallow), 'kunjeme' (move, stir), 'salevo' (stir, move slightly), and the like, e.g.:

- (1) *to yurunaki kiljete sti laspi*  
the piglet wallows in the mud.

Some of these verbs cannot appear in 'punctual occurrences' and are rather odd in event predications in general, others are much less 'processual'. Compare, for instance, 'kiljeme' (wallow) to 'tradazome' (jerk, shake).

- (2) *\*to yurunaki kilistike sti laspi ja mja stiyimi*  
the piglet wallowed in the mud for a moment

- (3) *to spiti tradaxtike ja mja stiyimi olokliro*  
the house shook for a minute 'whole'  
the whole house shook for a minute

The difference between the second and the third group is obvious: the latter one, involving 'regular/repeated' partial motion, includes fairly 'processual' verbs, e.g. 'tremo' (tremble), 'talandevome' (oscillate), 'palome' (vibrate). In Chapter 2 it is shown that 'tremo' (tremble) predications cannot be construed as typical events. Expectedly there are points of overlap between these two last groups.

Consider for instance 'anapiðao' (jump up/jump up and down) which can involve either a momentary movement or a series of 'jumps'. In the latter case 'anapiðao' is more likely to be understood as a CL rather than a CP verb, e.g.:

(4a) *molis akuse ton pirovolismo anapiðise stin karekla tu*  
when he heard the shot he jumped up on his chair

(4b) *o proponitis evale tus maðites na anapiðun*  
the coach made the pupils jump up and down.

In short, the borders between CL and CP verbs are also fuzzy. In List VII which presents a classification based on my personal intuitions in cases of doubt as to the typical understanding of an item, 'anapiðao' appears under CP (and as unspecified concerning regularity/repetition of motion). In the following chapter, discussing prototypicality judgments of subjects, a more objective image of this verb can be offered.

#### 4.2.1 'Change-of-location' and 'directionality'

'Change-of-location' (CL) or 'translation' of an object is considered in Miller and Johnson-Laird (1976:533) as constituting the "nucleus of the semantic domain" of MVs. The full construction they propose can be simplified, for our present purposes, and presented as (FROM (TO (TRAVEL))) (*x,w,v*). TRAVEL is used as the most general relevant predicate, i.e. as expressing CL in the simplest way possible (see also Miller 1972). Prepositional phrases appear as predicate modifiers, so *w* and *v* represent the initial and final locations respectively of the moving object (*x*). The main categories identified within this sub-area of MGMVs appear in List VIII in diagrammatic form.

Theoretically any change of location can be understood as a deviation from the axes set on a plane or in space (Ikegami 1969:112). In the most general terms possible, one would expect language to express

motion along a vertical axis (i.e. in relation to gravity), along a horizontal axis (e.g. forward - backward), around an axis (rotary motion). Notice, however, that unlike vertical direction, 'forward' and 'backward' in fact express direction relative to notions such as an object's natural front or habitual direction of motion. Similarly 'here' and 'there' involve direction relative to speaker and addressee's location, i.e. motion related to deictic elements of the language also apparent in the use of deictic verbs such as '*piveno<sub>1</sub>*' (go) and '*erxome*' (come). If the point of origin and the point of destination are marked for being on different levels, verbs are used which are marked for verticality, e.g. '*aneveno*' (ascend) or '*vuljazo*' (sink). There are no verbs, however, which are correspondingly restricted to horizontal direction. If a classification of MVs is made on the basis of their most general understanding, a distinction can be drawn between verbs marked for verticality and verbs which are indeterminate in terms of directional orientation (i.e. unmarked for verticality) rather than between vertical and horizontal direction specifying verbs. Notice, for instance, that '*proxoro*' (advance), '*beno*' (enter), '*ipoxoro*' (withdraw) are not restricted to a horizontal axis in the same way that '*skarfalono*' (climb) is restricted to a vertical one (unlike English 'climb' of course), e.g.:

- (5) *ipoxorise stin korifi tu vunū*  
s/he retreated to the top of the mountain

may be pragmatically odd but is not unacceptable, and

- (6) *proxoruse olo ke pjo vaθja sto piyaði*  
s/he advanced more and more deeply into the well

is a perfectly acceptable sentence. For this reason verbs marked for presence of verticality are classified separately in List VIII and no corresponding 'horizontal' box is envisaged. If prototypical conditions of application are taken into account, though, it is possible to identify typical uses of '*ipoxoro*' (withdraw) which may be linked with either a horizontal or a 'downward' direction but not

with an 'upward' one. Such discrepancies between a general and a prototypical understanding in terms of directionality are most evident in the case of some 'manner' specifying MVs and will be taken up and discussed in detail at a later point in this chapter.

Directional specifications other than vertical ones do not appear separately in List VIII. Their importance is not at issue. Most analyses of English CL verbs provide or presuppose an extensive treatment of directional adverbials and locative prepositions which are traditionally understood as semantic components of the verbs in question (e.g. Gruber 1965, 1976, Ikegami 1969, Miller 1972, Miller and Johnson-Laird 1976).<sup>6</sup> The absence of similar studies for the corresponding MG directional/locative AdvS renders impossible the task of analysing such semantic components of CL MG Vs in depth and bringing out their prototypical characteristics. Their combinational possibilities, as well as their relative salience in comparison with other kinds of semantic material (e.g. 'manner', 'causativity') will be discussed in 4.2.4, 4.4 and especially in Chapter 5. At this point, examples of MG CL verbs will be provided which can be safely matched with directional/locative AdvS as analysed in Ikegami (1969:112-31). Further examples can be found in List VI; the addresses of the relevant groups of verbs appear under each one of the AdvS presented in what follows immediately:

Directional Adverbials

Examples of MGMVs

upward / up  
6,7,8

'aneveno' (ascend)  
'apovionome' (take off)  
'skarfalono' (climb)

downward / down  
9,10,11,19,33

'kateveno' (descend)  
'katrakilao' (roll down)  
'vuljazo' (sink)

Directional AdverbialsExamples of MGMVs

forward / onward 35	'proxoro' (advance, proceed) 'prooθume' (advance) 'proelavno' (push forward)
backward / back 29,30,36	'opisθoxoro' (move backward) 'opisθoδromo' (retreat) 'epistrefo' (return)
inward / in 19,21,33	'beno' (enter) 'isvalo' (invade) 'vutao' (dive)
outward / out 22,37	'vyeno' (move out of) 'provalo' (appear out of) 'ekserxome' (come out of)
towards / to	'plisiazō' (approach) 'proserxome' (come to) 'episkeptome' (visit) 'fθano' (arrive, reach)
away from / from	'aperxome' (go away) 'apoxoro' (withdraw) ksekinao' (start off)

Besides these directional adverbials, a number of the aforementioned analyses of English MVs, include also 'through', 'by' and 'across' which refer to intermediate locations of the journey, 'around' which refers to 'change of orientation', 'with', 'after' and 'before' which refer to motion of an object relative to the location(s) of some other object. These will be considered and exemplified separately; they are understood here as being of a different status than the ones already mentioned. The relevant sections in List VIII are labelled

'Path', 'Dependent Motion', 'Random Walk' and 'Change of Orientation'.

#### 4.2.2 'Path' and 'dependent motion'

The term 'path' is used here in a restricted sense unlike its use in Miller and Johnson-Laird (1976) or Fillmore (1978) where 'path of motion' includes everything which is here understood as directional change-of-location. It is juxtaposed to 'source' and 'goal' in the sense that it concentrates on intermediate locations of the journey.

Verbs belonging to this category appear under 24 of List VI. Since the verbs in question describe in essence motion relative to some specific location usually taking up the position of their direct object, they can be related to a separate class of CL non-causative transitives which do not describe 'path' (or 'passage') but are similar to them in describing motion relative to some location occupying the position of their direct object. These are: '*perikiklono*' (encircle), '*triyirizo<sub>2</sub>*' (surround), '*parakampto*' (deviate, pass around), etc., e.g.:

(7) *o stratos perikiklose tin poli*  
the army encircled/surrounded the town.

Such verbs constitute probably a link between central cases of 'path' (e.g. '*pernao*' (pass), '*diasxizo*' (traverse)) and marginal cases of the 'change of orientation' group (to be discussed at a later point).

In List VIII verbs describing motion relative to some other moving entity rather than a fixed location appear under 'dependent motion'. These are also understood as linked to the group discussed in the preceding paragraph, in the sense that 'relational' characteristics are again central to their meaning. The English counterparts of these verbs are commonly analysed as incorporating 'directional adverbial components' of various forms, e.g. 'before', 'after', 'together'/'with'.

Allotting MG verbs to such classes is as simple a task as it is for the equivalent English verbs and examples are provided here for the sake of completeness rather than anything else. So verbs like: 'akoluθo' (follow), 'kiniyao' (run after, hunt), 'kataθioko' (chase) are traditionally understood as involving 'after'. Verbs like 'oθiyο' (lead), 'proiyume' (go in front of) 'proporevome' (walk in front of), 'protrexo' (run in front of) may be said to involve 'before'. All these verbs are transitive non-causatives. Some of them are marked for 'manner' as well as 'relative/dependent motion', e.g. 'proporevome' (walk (a long distance) in front of), 'protrexo' (run in front of), 'provaθizo' (walk in front of).

As already noted in Chapter 3, neither 'kiniyao' (run after, hunt) nor 'kataθioko' (chase) require that their direct object be moving, in contrast to 'akoluθo' (follow). There is no doubt, however, that their prototypical uses involve such a condition. Notice, simply, that a classification based on the 'most general' meaning of verbs would have no justification for allotting them to this particular group. The situation is different in the case of 'oθiyο' (lead) the prototypical instances of which do not involve a condition that the subject should be 'in front of/ahead of' the object, e.g.:

(8) *ton oθiyisan sto astinomiko tmima*  
they led him to the police station.

In terms of the prototypical image conveyed by (8) there is little doubt that the victim and his guards are side by side. The relevance of this observation lies simply in the fact that neither the verbs of the 'after' group nor 'oθiyο' (lead) of the 'in front of' group concentrate on physical motion as such. They involve conditions of application which focus on other characteristics such as 'purpose', 'intention' and the like. Therefore, 'incorporation' of directional adverbials does not seem to be the central issue in connection with quite a number of these verbs and especially the commonest ones. The group of verbs traditionally analysed as involving 'together' or 'with' constitute perhaps a clearer example of the inappropriateness of the notion of 'incorporation of directional Advs'. It is

questionable whether 'with' and 'together' can be classified as directional adverbials/prepositions (such as 'up', 'out', 'before', 'across'). Typical examples of this group are: '*sinoðevo*' (accompany), '*simporevome*' (walk (a long distance) together with) and its near-synonym '*sinoðiporo*' and '*sintaksiðevo*' (travel together with).

Some verbs are also marked for 'manner', e.g. '*simporevome*' (walk together with). The commonest verb of the group, namely '*sinoðevo*' (accompany), has no additional specifications, either in terms of type of motion, type of moving object, medium/environment in which motion takes place or directionality (in terms of axes). Moreover, it is applicable to any kind of activity/action, e.g.:

- (9) *o mixalis trayuðai ke i anita ton sinoðevi me tin kiθara*  
Michael sings and Annita accompanies him with the guitar.

It can be argued, of course, that its prototypical instances do involve physical CL (of some duration) which is carried out so that the 'principal traveller' (taking up the position of the direct object) would not be left alone. The most general understanding of this verb is not however linked to (physical) CL.

The property of 'accompaniment' can be understood in a more general way and used to differentiate between all 'dependent motion' verbs and those typically involving 'impetus' or 'propellent motion' such as '*ektoksevome*' (be launched), '*petavome*' (spring up) and its near-synonym '*tinazome*', '*ektoksevome*' (be launched). Gruber (1965, 1976), for instance, classifies all verbs involving 'before', 'after' and 'with' together as incorporating 'accompaniment', a label which seems more suitable to the very last sub-group mentioned here, i.e. MG '*sin-*' compounds. The relevance of such a broad distinction, in terms of presence or absence of 'accompaniment', is more apparent in the case of causatives of motion, where a large category of verbs can be characterized as lacking this property. Such a category would involve not only verbs marked for 'impetus' (e.g. the causative counterparts of the above mentioned set) but also others such as:

'*stelno*' (send), or '*apoviono*' (cause a plane to take off). 'Accompaniment' could then serve in identifying contrast pairs, e.g. '*piveno<sub>2</sub>*' (take to) vs '*stelno*' (send). In the area of causatives of motion, presence of 'accompaniment' is probably characteristic of most CL verbs, e.g. groups 15, 17, 28, 29, 31, 34, 37 of List VI. It is a necessary property of the deictic pair '*piveno<sub>2</sub>*' (take to) and '*ferno*' (bring) and some of their hyponyms, e.g. '*proskomizo*' (bring/take (a document to a civil service official)), '*kuvalao*' (carry s.th. (heavy)), '*perifero*' (carry around), etc. It is probably construable as one of the prototypical conditions of application of causatives like '*vazo*' (put), '*vvazo*' (take out) and a number of their hyponyms, e.g. '*xono*' (stick into). Groups 13TR and 20 in List VI are characterized by its absence.

The relevant distinctions between causatives, in this respect, are considered in detail in Chapter 3, where it is argued that the notion of 'control' (which is understood here as subsuming the notion of 'accompaniment') is a better tool in bringing out such differences, in connection with causativity and agentivity. At this point it is only worth noticing that 'accompaniment' as a 'minor' property seems to have a different status in the causative group than in the non-causative one, as it is applicable to a far greater number of verbs. Its salience relative to other 'minor' properties can be discussed again in connection with some test results in the following chapter.

#### 4.2.3 'Change of orientation'

The term 'change of orientation' is applicable to two types of verbs. The first type are usually referred to as 'rotary motion' verbs. The commonest members of the group, i.e. '*strivo<sub>1</sub>*' and '*virizo<sub>1</sub>*' (both implying 'turn') are not necessarily linked with (complete) rotation as such, but rather with change of direction, e.g.:

- (10) *sti vonia tu δromu estripse δεksia*  
at the corner of the street s/he turned right.

The next commonest one '*strifoyirizo*' (twist and turn) appears typically in an environment of the type:

- (11) *ōen boruse na kimiθi ke strifoyirize sto krevati*  
s/he could not sleep and twisted-and-turned in bed.

None of these characteristic uses is central to the notion of rotation around an existing or notional axis although '*strifoyirizo*' (twist and turn) in (11) is closer to (irregular and incomplete) rotation than '*strivo<sub>1</sub>*' (turn) in (10). This is perhaps better presented in less common verbs of the group, e.g. '*peristrefome*' (revolve, twine), '*periθinume*' (whirl, swirl, eddy), '*strovilizome*' (whirl), '*elisome*' (snake, wind), '*perielisome*' (coil), '*kulurjazome*' (curl up, wheel), etc.

Most of the verbs of rotary motion do not distinguish clearly between change-of-location and change-of-position. Consider, for instance, '*anapoθoyirizo*' and its near-synonym '*tubarō*' (overturn). So they differ from the classes already discussed in more than one respect.

Another group of MGMVs which can be also understood as involving 'change of orientation', but no rotary motion, includes verbs which are indisputably CL verbs, and characteristically 'processual' (duration is a definite characteristic of the whole group). Change of direction is in their case 'random' unlike the category just discussed, and irregular, on the whole. The nearest notion in physics seems to be 'random walk' which implies that the past history (direction) of the motion is not relevant to its continuation, i.e. each next step depends only on the location previously held and cannot be predicted on the basis of what has preceded it. The term 'random walk' is used in List VIII to distinguish these verbs from those involving rotary motion which appear under 'change of orientation'. Their most salient characteristic seems to be 'absence of final destination' or 'aimless change of location'. The group has an unusually great number of items, the commonest ones being: '*triyirizo*' (roam around), '*periplanjeme*' (wander) and '*periferome*' (rove, roam around) which do not specify 'manner', 'type of object'

moving, 'instrument/means' of motion. A subset involves hyponyms of 'perpatao' (walk), e.g. 'sulatsaro' (stroll) and its near-synonyms 'periđjavazo', 'serjanizo', 'voltaro', etc. One verb 'armenizo' (sail about) requires a specification of 'the sea' as a 'medium/environment'.

The main interest of this group lies in that it is extremely difficult to interpret its members in terms of necessary and sufficient conditions, contrastive features and formal components, although the semantic similarity of its members is obvious. Even the term 'aimless change-of-location', which is suggested here as reflecting their most salient property, is rather unfortunate. It is closer to the facts to suggest that different grades of 'absence of purpose' or 'relative seriousness of purpose' can be identified within this group.

Verbs like 'periiyume' (tour) and 'periođevo' (tour, travel), like 'taksiđevo' (travel) itself would be at the top of a 'seriousness of purpose' scale, in comparison to the remaining verbs of the group. The verb 'periplanjeme' (wander) could be immediately after them, in this respect, as it does not specify whether wandering is intentional or accidental (due to losing one's way rather than wandering around for amusement).

The verbs mentioned in the first part of the discussion of this group (e.g. 'periferome' (roam around)) are a step lower on the scale and there are differences between them too, all linked to the subjectively assessed property of 'seriousness of purpose'. Notice, for instance, that while 'kano volta' (have a walk) has a fairly positive connotation, 'voltaro' (stroll), though also etymologically related to it, has a rather negative connotation and 'kovo voltes' (walk around) is even worse. A great number of verbs and verbal expressions which belong to the domain under consideration have a distinctly negative connotation and could be therefore understood as lying at the bottom of the suggested scale where 'complete absence of seriousness of purpose' is matched with social disapproval. Such

verbs are: 'yiroferno', 'yirnovolao', 'alonizo', 'vosko', 'surtukevo', 'alitevo', 'koproskilizo', etc.

It can be easily argued, of course, that such considerations are of a purely sociolinguistic nature and that no semantic theory needs to account for them. The point made here, however, is that presence, absence and relative seriousness of purpose are the most salient properties of this group. They are responsible for the semantic similarity of the items in question, they constitute the very properties which differentiate them essentially from other groups of MGMVs and they cannot be adequately replaced by concomitant features such as change of direction and duration of the motion. It is further suggested that within the framework of prototype theory such properties can be easily accommodated in the form of descriptive conditions of application (rather than 'yes-no' criterial features). Such conditions have the additional advantage of not requiring homogeneity, i.e. they can be of different types and can combine perceptually with culturally important information.

#### 4.2.4 'Manner', 'medium', and 'instrumentality'

In what has preceded, reference is often made to verbs belonging to various categories, such as 'vertical direction' or 'dependent motion', while at the same time specifying 'manner' of motion, e.g. 'skarfalono' (climb), or 'simporevome' (walk (a long distance) together with). The distinction between 'general motion' verbs and 'manner specifying' verbs is not, however, a widely accepted one. In fact, analyses of English MVs use 'manner' as a label for much finer distinctions than the ones implied here, e.g. Fillmore's (1978) 'manner' issued for differentiating between 'stride' and 'scurry', while Miller and Johnson-Laird's (1976) example of 'manner' is 'travel rapidly'. In the present analysis, 'manner' is used in a fairly broad sense and is meant to cover three different areas: a central one involving various types of (typically) human motion on ground, e.g. 'trexo' (run), 'perpatao' (walk), a much wider area involving different ways of moving in water or air, e.g. 'kolibao' (swim), 'petao<sub>1</sub>' (fly), and a most restricted one involving

distinctions at a low level of inclusiveness as exemplified by hyponyms of verbs belonging to the central area, e.g. *'vimatizo'* (pace), *'ðraskelizo'* (stride).

The relations between 'manner', 'medium' and 'instrumentality' are presented diagrammatically in Fig.8 (overleaf), where the innermost circle includes 'general' MVs and the next larger one, verbs specifying manner in a broad sense (involving instrumentality and medium). The verbs appearing outside this larger circle belong to the most specific understanding of 'manner'. Both latter categories are also classified on the basis of the medium/environment within which the motion takes place.

The reason for considering such widely different kinds of motion as belonging together and as separate from 'general motion' verbs is that they behave in a similar manner when combined with verbs of the latter group. Notice, for instance, that all the verbs specifying 'manner', which are given above as examples, can appear in the following environment in the form of Present Participles:

- (12) *piye/efθase (kapu)* \_\_\_\_\_  
s/he went to/arrive at (some place) \_\_\_\_\_

The final position in the above environment can be occupied by: *'trexondas'* (running), *'perpatondas'* (walking), *'busulizondas'* (crawling (as of a baby)), *'kolibondas'* (swimming), *'petondas'* (flying), etc. The reverse (in terms of grammatical forms) is impossible:

- (13) *\*kolibise mexri to vraxo piyenondas*  
s/he swam up to the rock going.

It has to be explained at this point that 'manner' is understood here as related both to 'medium' and 'instrumentality'. The term 'medium' is often used to indicate the environment in which motion takes place, i.e. land, water, air. 'Instrumentality' is used to indicate



the means/cause of motion, i.e. human body, conveyance and perhaps gravity. It must be noticed that MG does not normally lexicalize instrumentality through cover terms such as English 'ride' implying moving by car, for instance, or 'fly' implying moving by plane. Even 'pleo' (sail) and its hyponyms, e.g. 'apopleo' (sail off/away), are mainly used to describe the motion of the ship and rarely that of the people on board. In short, instrumentality is commonly expressed through PPs of the form: 'me to aeroplano/plio/aftokinito' (by plane/ship/car). The same type of PP is used in juxtaposition to the ones just mentioned to specify 'feet' as instrument, i.e. 'me ta poδja' ((lit.) with the feet, on foot). Strictly speaking, this last expression does not differentiate between running and walking but it is in fact the latter kind of motion which is basically implied, since 'walk' is the unmarked member of the pair, i.e. the commonest way of changing location (on land and) on foot.

The interdependence of 'medium' with 'instrumentality' and 'manner' is also fairly clear, although 'medium' cannot be completely subsumed under 'manner' in the way that 'instrumentality' can. Notice, for a start, that the majority of 'body involvement' CL non-causatives imply 'land' as a medium (e.g. 'sernome' (creep), 'katrakilao' (roll down), 'skarfalono' (climb)). Some of them imply 'loss of contact with ground' and may be considered as involving both land and air as 'medium', e.g. 'piδao' (jump).

A number of verbs exist for which 'water' as 'medium' needs to be specified. Verbs implying motion in/into water are, for instance, 'viθizome' (sink), 'vuljazo<sub>1</sub>' (sink), 'vutao<sub>1</sub>' (dive). Verbs implying motion on/in water are: 'kolibao' (swim), 'pleo' (sail), 'armenizo' (sail about), etc. There are also examples of verbs implying motion out of water: 'anaδiome' (emerge (out of water), break water). Two of these verbs require special mention: 'vutao<sub>1</sub>' (dive) and 'kolibao' (swim). Besides motion in water, among other things, 'vutao<sub>1</sub>' (dive) implies 'loss of contact with ground' and can be therefore understood as an in between case, a cross of two mediums: land and water; it is also typically (although not necessarily) linked to human body motion. The latter verb, i.e.

'kolibao' (swim) is probably the only central case of 'manner' and 'body involvement', though it also characterizes the motion of fish.

The remaining verbs could, in principle, be used for different types of objects moving, and the 'manner' of motion can, in their case, be understood as the result of the combination of 'water' (as medium) and 'kind of object' moving, but nothing more specific than that. It is therefore arguable, that with the exception of 'kolibao' (swim) and perhaps 'vutao<sub>1</sub>' (dive) and its near-synonym 'kataðiome', the remaining verbs do not really specify 'manner' of motion but other properties such as 'medium', 'directionality', 'purpose', 'type of object moving'.

Similar considerations are applicable in the case of verbs which require 'air' as medium. The counterpart of 'kolibao' (swim) is 'petao<sub>1</sub>' (fly) in this area, which implies 'body involvement' and specific 'manner' of motion for birds but is otherwise similar to 'pleo' (sail) in that it is also used for other kinds of objects moving in the air, typically planes, marginally objects in them. Verbs like 'apovionome' (take off) and 'prosvionome' (land) involve two mediums, land and air (similarly to 'vutao<sub>1</sub>' (dive)). The same applies to all the verbs implying 'impetus' or 'propellent motion', e.g. 'ektoksevome' (be launched), 'tinazome' (spring up), etc. This last group is a further example of problems of general classifications, or rather their subjective character. Verbs implying 'impetus' can be classified under 'manner', 'change of medium' (if such a category needs to be invented), 'absence of accompaniment' or 'general-directional' motion. Notice, further, that 'loss of contact with ground' is also applicable to 'piðao' (jump), 'xoropiðao' (hop) and the like.

The point of view of the classification is necessarily a matter of choice, unless a prior analysis of specific items to be classified reveals which properties are more salient than others, e.g. whether, for instance, the property of 'manner' (clambering motion) is more salient in 'skarfalono' (climb) than the property of 'upward' direction or vice versa. At this point, different possibilities of

classification are presented with a view to accommodating properties which are here understood as linked to 'manner' of motion. 'Medium', 'instrumentality' and 'impetus' are regarded as being most closely related to 'manner' in the sense that their interaction results in various types of locomotion. Reference to 'type of object' moving has also been made in this connection. It is conceivable that a general classification should be based on 'type of object' moving, since a lot of 'manner' distinctions depend on it. The most prominent examples involve verbs describing the motion of liquids/masses, e.g. 'stazo' (drip), 'xinome' (flow into, be spilled). Notice, also, that differences in 'speed' exemplified through subordinate level items such as 'aryosalevo' (stir slowly/slightly), 'aryokilao' (flow slowly), 'taxiploo' (sail rapidly), etc. should also be subsumed under 'manner' in the understanding of 'manner' posited at the beginning of this section as the most restricted one. Other examples of high specificity involve 'length of distance covered' as exhibited by hyponyms of 'perpatao' (walk) such as 'porevome' (walk a long distance) and combinations of 'speed and length' present in verbs like 'vraōiporo' (walk a long distance slowly).

Following Miller and Johnson-Laird's (1976:550) terminology, we could consider verbs such as 'perpatao' (walk), 'trexo' (run), 'sernome' (crawl, creep), 'skarfalono' (climb) and 'kolibao' (swim) as referring to "main global locomotory motions". The equivalent English verbs have received extensive treatment in many different ways and the exercise is not worth repeating for MG verbs. Specific points of various approaches are, however, worth discussing in order to show the differences between them and Prototype theory.

A possible approach to this particular set of verbs is presented by Leech (1969:189) who establishes a "multiple taxonomic system" of the form:

1 LOCO	2 LOCO	3 LOCO	etc.
'walk'	'run'	'crawl'	

The first two examples correspond to 'go on foot', the third one to 'go on all fours'. The terms 1 LOCO, 2 LOCO, etc., stand for different ways of changing location without involvement of any external instrument. Such an approach concentrates on the structural relations of the items in question and seems to be consistent with the principle of the 'maximally general, minimal specifications' (see Chapter I). It is fairly easy to show that anything more specific than such incomplete definitions risks violating this principle. It can be also argued that even lengthy and comprehensive accounts of the verbs in question result in incomplete and unsatisfactory definitions if they are governed by the ideals of neat formulae and maximal generalization. Consider first, as a case in point, Miller and Johnson-Laird's (1976:547-53) account of 'walk'. The motion labelled by 'walk' is analysed in a complex of lower level bodily movements, such as lifting a foot from the ground and moving the other one in front of it while simultaneously moving the body forward and changing its centre of gravity, etc. To differentiate between 'run' and 'walk', Miller and Johnson-Laird (ibid.) introduce a component ATG which stands for 'always touching ground', refers to 'feet' and is part of the specification of the latter verb but not of the former one. ATG is meant as an illustration of "how manner of travelling can be incorporated" and is assumed to denote "the appropriate pattern of muscular coordination stored in action memory" (p.552). Hence the formula for walk amounts simply to:

(WITH (ATG (ACT))) (x, S, FEET) & CAUSE (S, (on (TRAVEL)) (x, LAND))

To make the definition maximally general, a proposal is added to the effect that 'on land' can be removed. The actual justification provided is that we have no trouble understanding "walking on air" or "walking on water" (ibid.). Consequently there is no specification of directional orientation and no implications as to destination, continuity and regularity of motion. The possible relation of manner specifying verbs with directionality will be discussed in some detail, following a brief consideration of other characteristics of some of these verbs. At this point, suffice it to notice that definitions such as the one just presented, besides being incomplete, also mix general with prototypical information. It is not obvious

why 'feet', for instance, should be included and 'on land' need not; one can perfectly understand 'walking on one's hands' and such a situation is perhaps less unlikely than 'walking on water'.

The inevitability of concentrating on the typical instances of the occurrence of such verbs is also apparent in analyses which are completely unrelated to Prototype theory and are in essence contrast-based in keeping with the structuralist tradition. Consider, as a further example, Nida (1975:73-82) who starts with the preliminary restriction that his analysis should be applicable to the movement of persons. Nida is in search of diagnostic features of the meaning of a small set of semantically related verbs such as 'run', 'walk', 'hop', 'skip', 'jump', 'dance' and 'crawl'. The resulting presentation of the contrasts exhibited by these verbs is in the form of an extremely detailed matrix involving the nature of the contact of limbs with the ground and features such as number of limbs used, order of contact, whether one or another limb is always in contact or no limb is in contact at all at times.

The extreme detail of the description is itself indicative of the fact that specific instances rather than a maximally general picture of the motions in question are being analysed plus the additional requirement that contrasts be brought about at every single point and at the cost of including information which is irrelevant for the understanding and correct use of the items in question. Once again mixing general with specific information seems inevitable. Notice, for instance, that the specification of 'run' involves: '2 limbs used', 'alternative order of contact with ground' and 'no limb in contact at times' which is the only point on the matrix differentiating 'run' from 'walk'. The restriction to persons, however, necessitates a specification of '2 limbs' rather than a more general one involving 'any limbs which are normally in contact with ground'.

Structuralist analyses yield better results when they compare verbs which contrast more dramatically, e.g. 'run' and 'walk' compared to 'roll' and 'creep'. The main contrasts in terms of perceptual

properties can be directly borrowed from such analyses for the description of similar MGMVs and construed as conditions of application. Examples will be offered however to show that not all properties have a contrastive value for a whole set of verbs and that some of the non-contrastive ones are quite relevant for the understanding of the items in question.

Change-of-location, continuity of the motion and contact with ground are common characteristics of *'trexo'* (run), *'perpatao'* (walk), *'kilao<sub>1</sub>'* (roll) and *'sernome'* (creep). The points of contrast involve 'continuous contact' for the two last verbs rather than 'intermittent contact' which characterizes the first pair and 'whole body/main part of the body in contact' rather than 'extremities of limbs (feet)'. A property such as 'continuous series of points in contact with ground' juxtaposed to 'any part/portion of the body in contact' can also be evoked in a structuralist analysis to differentiate between *'kilao<sub>1</sub>'* (roll) and *'sernome'* (creep).

Notice, however, that a lot more information is necessary which need not be contrastive even within this small subset. The verb *'kilao<sub>1</sub>'* (roll) is scarcely applicable to human body motion, as it requires a round object moving and implies 'smooth' motion, at least in its prototypical uses. It is typically used for the motion of a ball, for instance, and in case the object is not perfectly round and smooth (e.g. a barrel rather than a ball) the verb also invokes the picture of a reclining surface or obvious external instigation of the motion. A further property, which characterizes this motion and under which the condition of 'smoothness' can be subsumed, is 'regularity', which seems relevant to a number of verbs of this domain. Points of contrast between *'kilao<sub>1</sub>'* (roll) and *'katrakilao'* (roll down) include 'regularity' and 'smoothness' which are absent in the latter verb. Besides these properties, *'katrakilao'* (roll down) also involves 'downward direction', applicability to human body, and typically 'loss of equilibrium' and 'gravity' as the cause of motion. 'Continuous contact with ground' is, as already mentioned, a shared property of these two verbs with *'sernome'* (creep). 'Body involvement' as a sole means of change-of-location can be considered as a point of contrast between *'sernome'* and the aforementioned

verbs. Other properties, present at least in its prototypical instances, such as 'relatively slow motion' and CL which is not typical for humans, need not, however, be mentioned in connection with every other verb of the set. Further properties will be discussed in connection with the test results in the following chapter.

In Chapter 2 on the S-P-E distinction, a basic difference was noticed between the verbs just discussed and '*piðao*' (jump). In simple terms this can be stated as a condition that '*piðao*' involves 'momentary' loss of contact with ground. A further point of contrast could be that '*piðao*' (jump) is linked with 'upward' direction, a property it shares with '*xoropiðao*' (hop). The motion described by '*piðao*' can be a 'punctual occurrence' or an activity (series of repeated jumps), while '*xoropiðao*' (hop) is necessarily characterized by 'continuity'. An important prototypical condition for the application of both '*piðao*' (jump) and '*xoropiðao*' (hop) is that they are not normally used for covering a distance in order to reach some destination on a non-vertical axis. This condition seems to be a more prominent point of contrast with the other verbs already discussed, but is completely absent in the literature as far as I know. Including 'order of contact' in the specification of these verbs in order to contrast them (as Nida 1975 does) would be misleading: no particular order of contact seems to be characteristic even of the prototypical uses of '*xoropiðao*' (hop). The boundaries between '*piðao*' and '*xoropiðao*' are evidently fuzzy. Concentrating on their respective prototypical conditions of application can bring out the essential points of contrast which seem to be related to 'seriousness of purpose', 'single vs repeated motion' and 'regularity of repeated jumps/hops'. It seems plausible to assume that prototypical conditions for the application of '*piðao*' (jump) involve moving over an obstacle in order to continue on one's course, trying to reach something high, or physical exercise (related to regular and repeated such motions). Compared to the prototypical instances of '*xoropiðao*' (hop) which involve 'motion for recreational purposes', those of '*piðao*' (jump) are 'marked' for 'seriousness of purpose'. The points of overlap (i.e the 'focus' of fuzziness) become evident; when continuity/

repetition and regularity are present but (seriousness of) purpose is in doubt, choice between the two verbs in question will be random.

Another 'manner' specifying verb which can be only maltreated within the framework of contrast-based theories is 'xorevo' (dance). Regularity of motion, nature of contact with ground, points of contact etc. seem completely irrelevant in this case. Nida (1975:75) provides a value for all the dimensions relevant for 'walk' or 'run' in analysing 'dance', while Miller and Johnson-Laird (1976:551) consider it an instance of a 'specialized mode' of "travelling by foot on land", in the same subset with 'hop' and 'skip'. It is hard to see the relevance of such considerations for the average speaker's competence with respect to this extremely idiosyncratic verb. Although it implies 'continuous motion', it is not used for covering distance or reaching a destination but is clearly marked for 'purpose' (loosely specified here as 'recreational'). Stating that the motion involved is 'rhythmic' does not amount to much either; typical (and often marginal) instances of its application in terms of perceptual properties can be only described in connection with specific cultures, a situation not likely to arise in any other kind of movement discussed so far. Restriction to humans is also part of its specification; the dancing of trained bears and courtship dances of birds can be safely excluded even from general (as opposed to prototypical) definitions, as extensions of meaning.

Two more 'bodily movement' verbs will be discussed very briefly, which necessitate a specification of 'medium' and are mentioned earlier in this section in that connection, namely 'kolibao' (swim) and 'petao<sub>1</sub>' (fly). Notice that a specification of limbs used, for instance, is completely irrelevant for either of them. Nida (1975:79) includes 'forelimbs used as a means of propulsion' for 'fly', for the sole purpose (it seems to me) of contrasting it with other bodily movement verbs at every single point. Evidently 'wings' and not 'forelimbs' (in general) needs to go into its specification. Notice, also, that 'kolibao' (swim) is not mainly used for reaching a destination and that its direction is typically horizontal especially if applied to humans.

General definitions and contrast-based matrices cannot reveal these properties, which seem, however, central to the understanding of the verbs in question. In fact, the relations between 'directionality' and 'manner' are rarely (if at all) taken into account, except for very obvious cases like that of 'climb' or 'jump'. It seems, however, that different 'manner' specifying motion verbs exhibit different degrees of compatibility with vertical and horizontal direction.

It seems plausible to assume that '*kolibao*' (swim) applied to human motion is the most characteristic case of horizontal direction since the motion it describes is typically executed on the surface of the sea, i.e. on nearly zero gradient. Swimming towards the bottom of the sea or from the bottom to the surface is less typical and in most such cases verbs marked for verticality will be used instead, i.e. '*kataḍiome*' (dive) and '*anaḍiome*' (emerge (out of water)). Motion in all different directions within water as in scuba diving, for instance, arguably involves marginal instances of the verb's application.

Motion in the air, i.e. in (three dimensional) space expressed by '*petao<sub>1</sub>*' (fly) is characteristically indeterminate as to directional orientation. In practical terms this means that only completely vertical direction may be specified with an expression marked for verticality, i.e. '*kano vutja*' (dive). In terms of prototypical conditions of application '*petao<sub>1</sub>*' can be said to be compatible with a variety of different directions, i.e. not specified for 'typically horizontal direction' unlike '*kolibao*' (swim).

Compared to these two verbs, '*perpatao*' (walk) is an in between case, i.e. much less flexible than '*petao<sub>1</sub>*' (fly) but more so than '*kolibao*' (swim). If walking is executed on quite a precipitous grade, a verb marked for verticality is likely to be used instead, i.e. '*aniforizo*' (go uphill). Compared to '*perpatao*' (walk), '*sernome*' (creep, crawl) is more restricted to horizontal direction for obvious physiological reasons, i.e. owing to the physical abilities of the human body. A very precipitous grade will

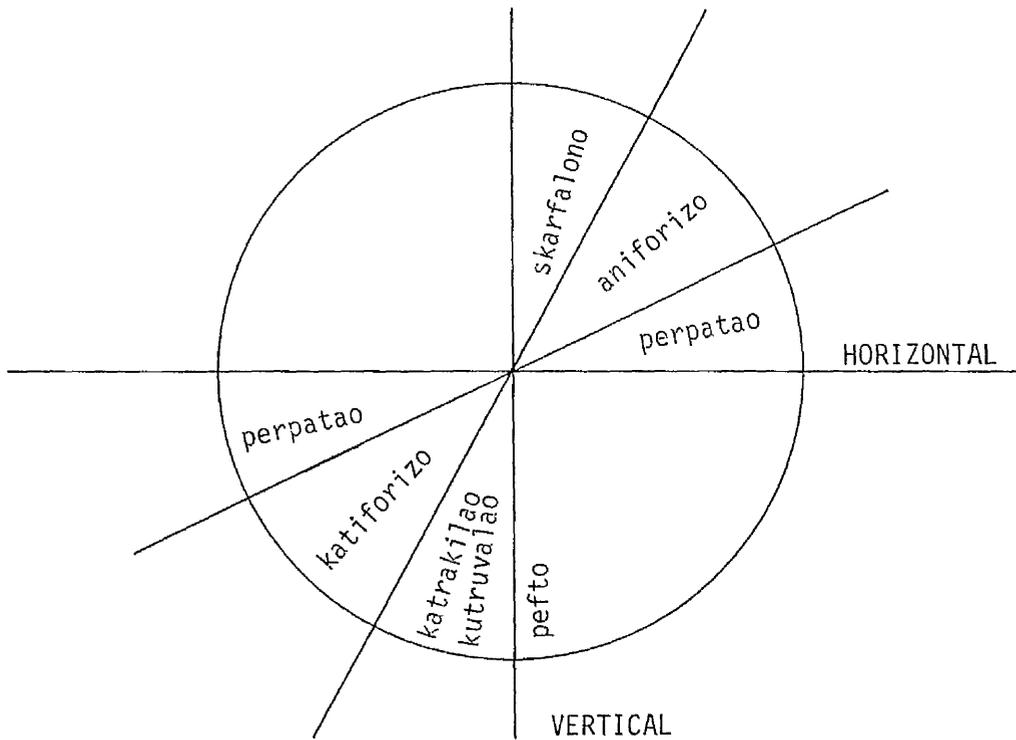
necessitate use of 'skarfałono' (climb) instead. More accurately put, it will push in the direction of 'skarfałono'.

In a language such as MG which does not have separate lexemes for 'creep' and 'crawl', the boundaries between 'sernome' (creep, crawl) and 'skarfałono' (climb) are expectedly fuzzy and choice between the two verbs is bound to depend on how slopy the surface is, in marginal cases of the use of either of them. The situation is clearly different in the case of moving objects with physical abilities other than those of humans, e.g. snakes, where 'sernome' (creep) will predictably cover a wider area than 'skarfałono' (climb). The latter verb will be only used in such cases, if the direction is completely vertical (e.g. a snake going up a tree).

Gradation is also apparent in the case of verbs prototypically understood as involving 'downward' direction. In a maximally general definition, 'ylištrao' (slip, slide) can be only unspecified as to verticality, but in its prototypical uses, it certainly requires a condition of 'downward direction'. Compared to 'ylištrao<sub>1</sub>' (slip, slide), 'kilao<sub>1</sub>' (roll) seems to be less marked for 'downward direction'. In terms of prototypicality conditions, this means that 'ylištrao' is a central case of 'prototypically downward direction', while 'kilao' is less so. Clearly, if the surface is completely vertical, neither verb will be applicable any more. The choice will be restricted to 'pefto' (fall), 'katrakilao' (roll down) or some other 'downward' motion verb implying either 'intermittent contact' with surface or 'loss of contact' with supporting surface. Thus, if one imagines a line leading from a completely horizontal to a completely vertical direction, points along this line can be occupied by various 'manner' specifying verbs in the following sequence:

'kolibao' 'sernome' 'perpatao' 'petao<sub>1</sub>' 'kilao' 'ylištrao'  
HORIZONTAL ----- VERTICAL

A possible schematic representation of the relations of 'directionality' and 'manner of motion' exhibited in some verbs involving 'human body contact with ground' is the following:



Clearly, the above brief presentation only touches on the problem of combinability between horizontal-vertical direction and 'manner' of motion. It is hoped, however, that such an approach can be used and expanded so as to cover most 'manner' specifying MVs as well as most 'general' motion ones.

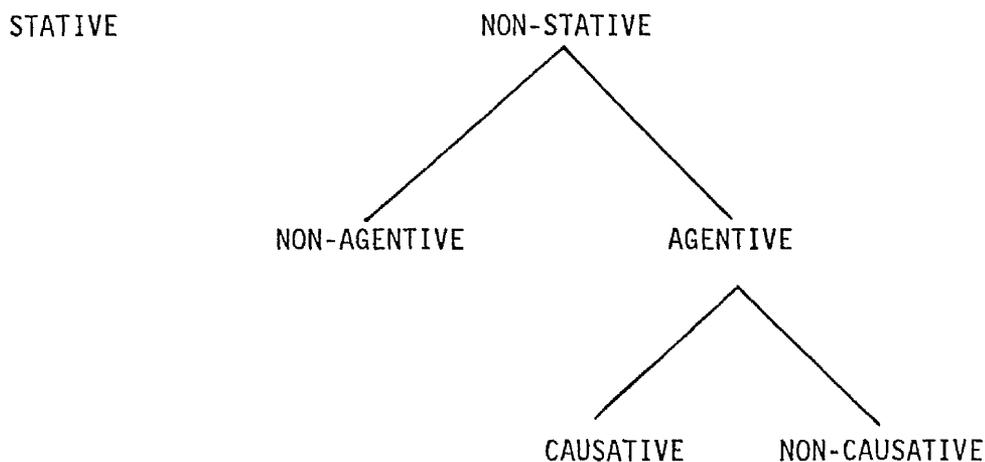
#### 4.3 Hierarchy of properties: taxonomies and paradigms

It can be easily shown that almost any hierarchy which could be proposed as holding between 'major properties' would be arbitrary. It has also been argued here that categorization of the same material depends heavily on the angle from which the analyst wishes to look at it and the sort of features s/he decides to use. This also implies that hierarchical structuring between 'minor properties' is also arbitrary, at least to some extent. The extent to which these claims are true can be discussed at this point, since most of the relevant properties have been presented, analysed and exemplified. The purpose of this discussion is twofold. It should first show that

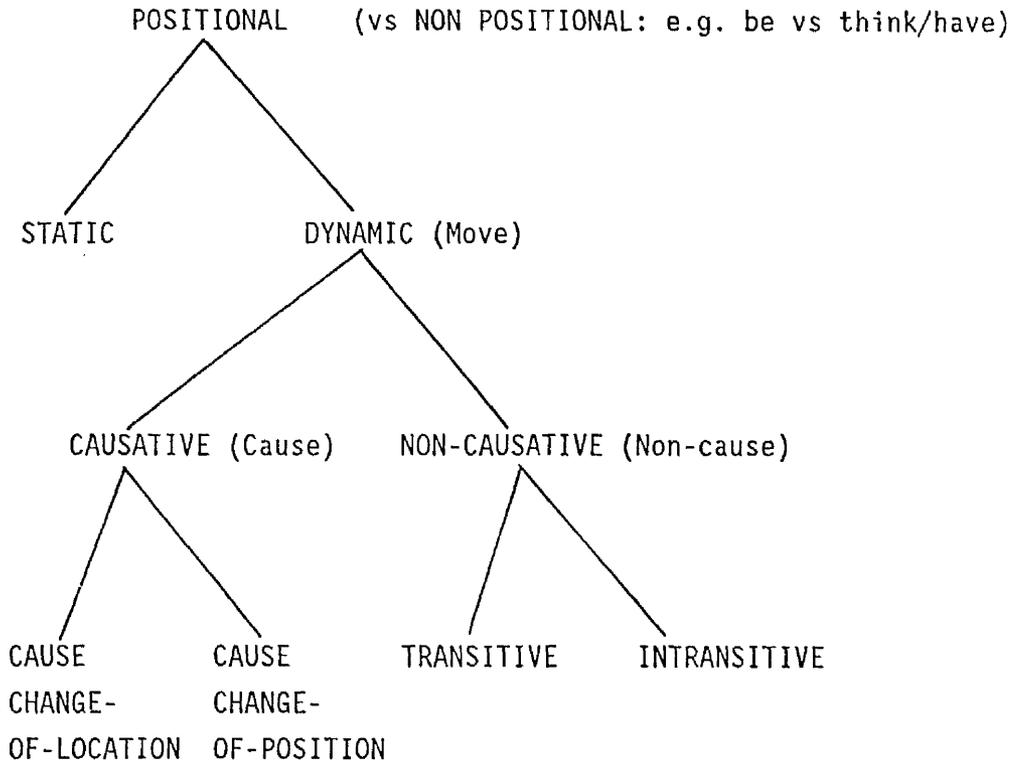
in structuralist terms the field under investigation is probably what Lounsbury (1964:1086-7) would consider 'neither a genuine taxonomy nor a genuine paradigm' but closer to the latter rather than the former, unless no distinction is drawn between 'dimensions' and 'features'. It should secondly lead to the conclusion that discovering the 'relative salience' of properties is a more worthwhile task than discovering their relative hierarchy, since the former but not the latter can come out of specific tests eliciting information from native speakers and giving, therefore, a less arbitrary picture. A related issue, which is also more interesting than hierarchy of properties, is the 'non-arbitrariness' of their combinations, which will be taken up in the following section.

In 4.1 it is argued that 'major' properties are often linked with different predications and different forms of the same verb, so that both 'stative' and 'non-stative', for instance, may be applicable to '*aneveno*' (ascend). This will depend, among other things, on whether it appears in the Perf.b' form as '*ime anevasmenos*', or in the Pres.If. form as '*aneveno*'. Even if we ignore such problems (along with the phenomenon of gradation) and account only for a particular 'principal' form of a verb, i.e. the Pres.If. one, a strict hierarchy seems impossible, especially if we also do away with the major-minor features distinction adopted in the present study. Notice a number of possibilities for such features in the area under investigation.

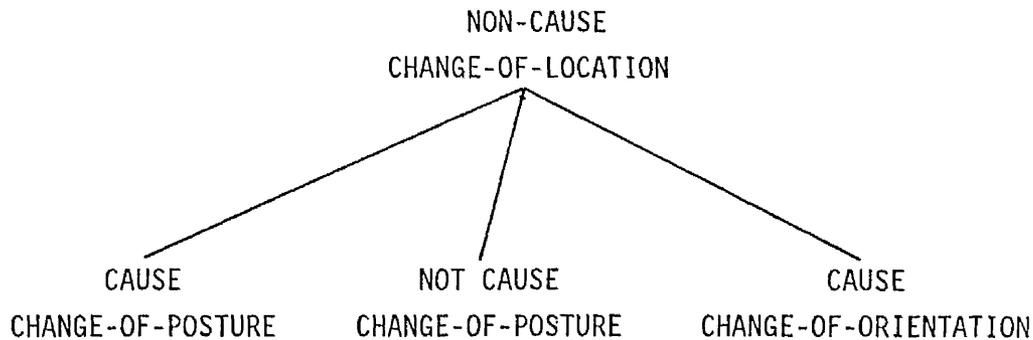
Anderson (1971) envisages a pattern of the form:



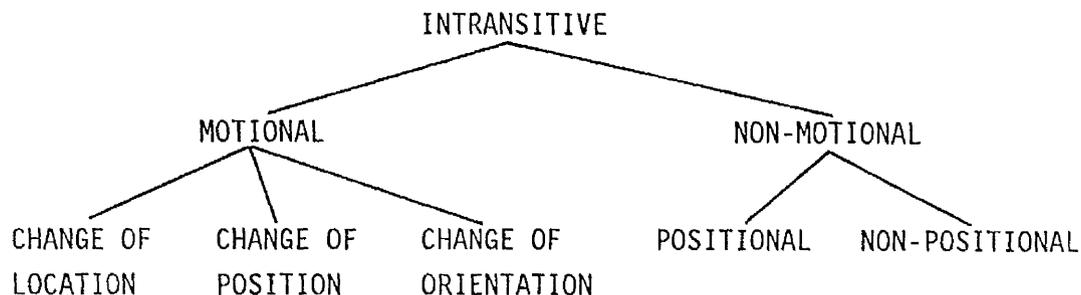
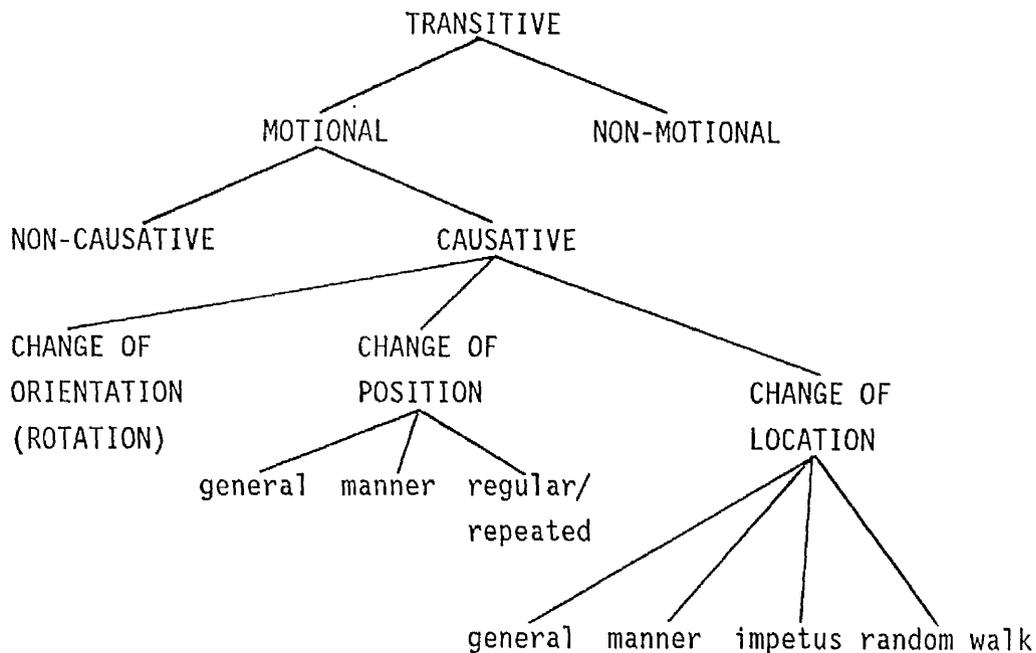
Instead of the above plausible schema, one could also have:



Alternatively, CAUSATIVE could branch into AGENTIVE and NON-AGENTIVE and instead of CAUSE CHANGE-OF-POSITION above, one could have NON-CAUSE CHANGE-OF-LOCATION (sticking to genuine structuralist contrasts). A possible branching of this new category could be:



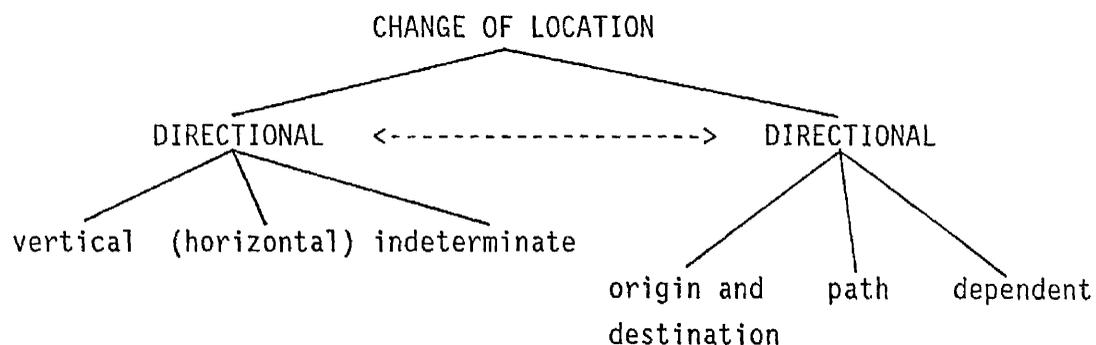
The possibilities are not exhausted. As a final example consider also:



It is fairly uncontroversial that at least some entailment relationships can be detected as existing between the properties under consideration. Both CL and CP, for instance, do imply 'motion(al)' and this order seems irreversible. Therefore some taxonomic structuring at intermediate levels can be envisaged.

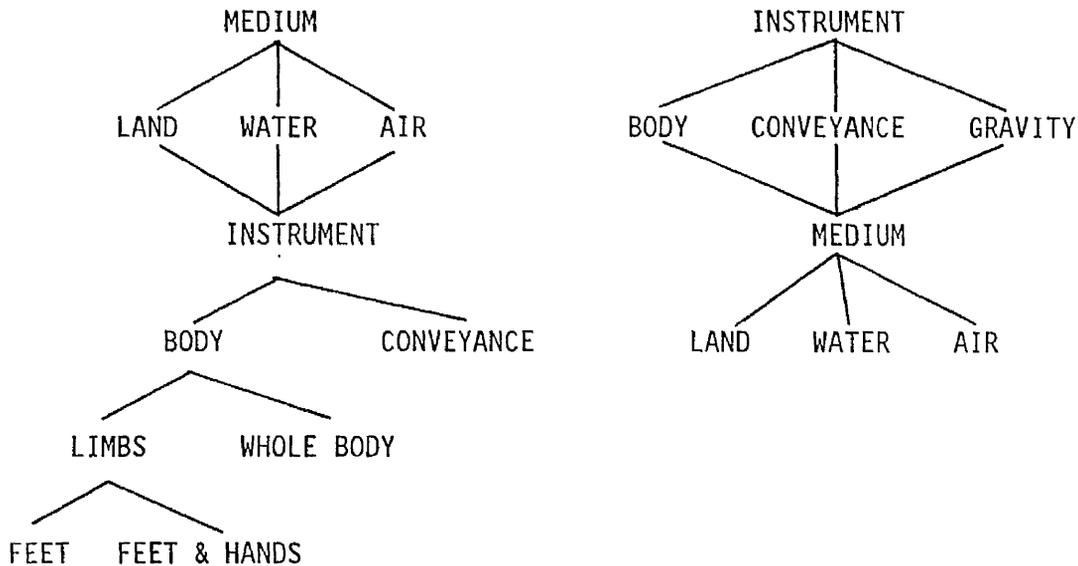
In 4.1 it is also argued that 'general' means simply 'not specifying manner' and does not suggest a hierarchical connection between the two, so such a possibility is ruled out. This involves, however, a broad understanding of 'manner' as presented in 4.2.4. Different understandings would obviously lead to different classifications. Notice, further, that in 4.2.1 'general' CL is linked to 'directionality'. Where directional features stand in connection

with 'general' and 'manner' specifications is, however, an open question. It is actually suggested in 4.2.4 that 'directionality' is also linked with 'manner'. Whether this is accepted or not, the relation/relative hierarchical order of CL, CP and 'directionality' allows for a number of possibilities not discussed yet. Although only CL is usually analysed as involving directional properties, it can be shown that CP can also subsume such components. Consider, first, some relations between CL and 'directionality' which have been already hinted at in previous sections:



As already pointed out in 4.2.2, 'accompaniment' could appear under 'dependent' motion, or be understood in Gruber's (1965, 1976) sense, in which case it is a property of much higher level involving goal, directionality, etc. 'Directionality' can also appear under CP. Verbs such as '*ksaplonoz*' (lie down), '*skivo*' (bend), '*sorjazome*' (collapse), involve 'downward direction' in every possible use. Besides, '*kaθome<sub>2</sub>*' (sit down) is prototypically understood as involving 'downward direction', i.e. sitting from a standing position and less typically as involving 'upward direction', i.e. sitting up from a lying position. A different verb '*anakaθome*' (sit up) can be used in the latter case, which obviously involves 'upward direction', as does also '*anapiθao*' (jump up). All these verbs are classified under CP in List VII and in particular, some of them are under 'CP resulting in different posture' while others appear under 'CP non-resulting in different posture'. Therefore 'directional' could be above CL and CP.

In the previous section it is argued that 'change of orientation' involving 'rotation' could be either on the same level with CL and CP or under both as it involves verbs unspecified for CL or CP. It is also suggested that 'instrumentality' may be subsumed under 'manner'. Especially if no distinction is drawn between 'dimensions' and 'features', a number of different possibilities exist, with respect to 'instrumentality' and 'medium'. They can be schematically represented as follows:



These schemata are abbreviations of 'complete' versions in which most features under 'instrument' would appear under each separate 'medium' specification and vice versa. What is more important, 'instrument' links up with 'cause', so that a confusion between higher and lower level properties is again possible (ignoring the principles suggested here as relevant for the distinction). Nevertheless, taxonomic relations can be again detected, with the proviso that 'dimensions' and 'features' are not kept separate. Notice, for instance, that the hierarchical order of whatever appears under BODY in the above schema cannot be reversed. Notice, further, that features involving 'number of limbs used' or different types of 'contact with ground', e.g. 'continuous', 'intermittent', entail obviously 'contact with ground', but 'loss of contact' would then have to appear on a higher level than, say, 'continuous contact' and in particular on the same level with 'contact with ground'.

Properties such as 'distance covering' are also necessarily lower than CL, and '+/- fast motion' is lower than 'manner' in any understanding of the latter. In 4.1.3 a number of properties are mentioned which are relevant to specific verb taxonomies, such as those proposed for hyponyms of 'fevvo' (leave), e.g. 'negative connotation', 'going away from a group of people', 'changing country of residence', etc. There can be little doubt that these properties are hierarchically lower than CL, 'distance covering', and 'directionality', for instance. It is not therefore true that features cannot be used to support the attested hierarchical structure between hyponymically/taxonomically related items (Rhodes 1983). Nida's taxonomy (discussed in 4.1) is not convincing because it involves terms which are probably on the same hierarchical level. If 'proper' taxonomies are established (and it is suggested in 4.1.3 that they can be only established at a fairly low level in this field), features distinguishing lower from higher level taxa (in the same taxonomy) do support the hierarchical structure, almost by definition. The problem seems to be whether the attested differences between a basic level category and its hyponyms can be construed in the form of 'traditional' features, i.e. undescriptive (if not primitive) one/two-word terms or not. It is suggested here that except for few cases the answer is negative.

It is further suggested that the properties in question have a specific hierarchical status only within specific taxonomies. This means that there is no a priori reason why 'negative connotation' should be lower than 'transitivity' or 'non-causative', for instance, except for the major-minor properties distinction proposed here. Within taxonomy 5 (List VI), 'negative connotation' is used for verbs such as 'ksekubizome', 'strivo' and the like, all equivalent to 'clear off'. In that particular taxonomy, it can be said to be even lower level than some property: 'other people involved', also present in other hyponyms of 'fevvo' (leave) such as 'apoxoro' (withdraw) and 'aposirome' (retire). Within taxonomy 11 (List VI), it could be used to characterize verbs such as 'katrakilao' and 'kutruvalao' (roll down) and it is fairly clear that, in that case, it has nothing to do with 'other people involved'. Such considerations do not, however, bear on how salient the property of 'negative connotation' may be

psychologically. In the next chapter discussing test results, its relative salience can be partly assessed in connection with other properties, traditionally considered relevant for MVs such as 'directionality' and 'contact with ground'. For the moment, all that can be said is that its exact hierarchical position cannot be independently determined.

In traditional structuralist terms it must be noticed that paradigmatic structuring is also exhibited in the field under investigation. Paradigms are exemplified by the pairs:

'beno' (go in) - 'vyeno' (go out),  
'vazo' (put in) - 'vyazo' (take out),

'isavo' (import) - 'eksavo' (export)  
'iserxome' (enter) - 'ekserxome' (exit)

where only IN-OUT are contrasted. Similar paradigmatic relations are exhibited in the following pairs:

'aneveno' (go up) - 'kateveno' (go down)  
'anevazo' (take up) - 'katevazo' (take down)  
'aniforizo' (go uphill) - 'katiforizo' (go downhill)  
'ipsono' (raise) - 'xamilono' (lower)  
'anexome' (ascend) - 'katerxome' (descend)

Deictic pairs exhibit also paradigmatic relations:

'piveno<sub>1</sub>' (go) - 'erxome' (come)  
'piveno<sub>2</sub>' (take to) - 'ferno' (bring)

It seems, however, that 'fevyo' (leave) can be also contrasted to 'erxome' (come) and 'stelno' (send) to 'ferno' (bring), although more than a 'single feature contrast' is involved.

The psychological validity of some of these patterns and properties will be discussed in the following chapter.

#### 4.4 Motion verbs and the non-arbitrariness of categories

Mervis and Rosch (1981:91-2) present evidence to show that attributes (properties) are not combined arbitrarily to form items.<sup>7</sup> If the opposite were true all combinations of attribute values would be equally likely to occur. Mervis and Rosch's (ibid.) illustration of this issue involves the properties normally used in classifying animals, i.e. "coat" (fur, feathers), "oral opening" (mouth, beak) and "primary mode of locomotion" (flying, on foot). If animals were created according to a model contending that the division of real world objects into categories is originally arbitrary, one would expect eight different types/combinations, e.g.:

animals with fur and mouths moving primarily on foot  
animals with fur and mouths moving primarily by flying  
animals with fur and beaks moving primarily on foot  
etc.

It is fairly evident that the perceived world of objects is not actually structured in this manner. Only two of the eight theoretically possible combinations of attribute values "comprise the great majority of existent species in the world that are possible based on this total set" (ibid.), i.e. mammals (fur, mouth, feet), and birds (feathers, beak, flying). It would, in fact, be more accurate to say that creatures with feathers and mouths moving primarily on foot are not likely (if at all) to occur and that creatures with feathers and beaks moving primarily on foot, although they do occur (e.g. chicken), are quite expectedly judged by subjects as marginal instances of the relevant superordinate category, i.e. 'bird'.

In the area of MVs the 'non-arbitrariness' of categories is equally (if not more) obvious, although it is perhaps of a different nature. Properties such as 'intentionality', 'animacy', 'presence of

supporting surface', 'liquid moving object', etc. will combine or not in an even less arbitrary and qualitatively different way from attributes observed in discrete objects. Combinations in this field depend, to a large extent, on the laws of physics, besides the natural characteristics of moving objects, e.g. the natural potentials of human beings as moving organisms. The issue is both broad and complex, so that tackling it in any detail would lead beyond the scope of the present investigation. It seems, however, worthwhile pointing out a number of self-explanatory cases in support of Rosch's principle from an area of the vocabulary which is completely different from the ones Rosch and her colleagues have dealt with so far. The principle seems to me to give a new prospect to lexical semantic analysis, which has so far handled relations between co-existing properties in the form of entailments.

Consider as an example 'impetus' as a characteristic of a number of causatives of motion such as 'petao<sub>2</sub>' (throw), 'eksfendonizo' (hurl). Presence of 'impetus' can be said to imply 'absence of accompaniment' or 'loss of contact'. This relation can be handled through entailment or semantic lexical redundancy rules (although this practice is not applied in the treatments of MVs that I know of). The combination of 'impetus' with 'loss of contact' may in other words be considered a necessary/inevitable one. The same applies to the relation of 'impetus' with some property we could call 'speed'/'energy'. Its combination with 'travel through air' is, however, a less necessary one, since objects can be 'hurled' while in water, from the surface of water into it, etc. Within the framework of prototype theory 'travel through air' should feature as part of the combinatorial possibilities of 'impetus'. Within the framework of necessary and sufficient conditions approaches 'travel through air' appears usually as a separate property, unrelated to 'impetus'.

The property of 'continuous' motion is clearly combinable with 'regular/repeated' or the notion of 'random walk' as exemplified in 'periplanjeme' (wander) and the like.

'Liquid'/'mass' as type of moving object co-occurs normally with 'downward' rather than 'upward' direction, unless 'impetus' is involved. The latter possibility does exist but is somehow marked/marginal. The point here is that verbs restricted to describing the motion of liquids only, e.g. 'stazo' (drip), 'xinome' (be spilled) are more likely than not to also involve 'downward' motion. An apparent exception to this is provided by the verb 'anavizo' (gush out) which, however, may be also thought to involve 'impetus'/'energy' and can therefore hardly be called an exception. This verb is an example of the co-occurrence of 'upward' and 'outward' which although far from necessary, it is certainly much commoner than that of 'outward' and 'downward', especially in the case of 'water' as the medium of motion (for obvious reasons). Characteristic examples of these combinations are 'anaðiome', which involves 'out of water and upward' and 'kataðiome' which involves 'into water and downward'. It is also interesting to notice that although there exist verbs which combine 'up' and 'out of', e.g. 'ksepetayome' (jump out of, appear suddenly out of), the combination of 'up' and 'into' does not materialize in any MGMV.

Quite evidently motion into water will also be 'downward', a combination exemplified in verbs such as 'viθizome'/'vuljazo' (sink), 'kataðiome'/'vutao' (dive), and the like. A generalization (if not an explanation) of these simple observations is the obvious combination of gravity as the cause of motion with 'downward direction'. If the moving object lacks a self-moving (henceforth SM) mechanism, its motion is more likely than not to have 'downward' rather than 'upward' direction, unless there is an external cause involved such as 'impetus', 'accompaniment', etc. In short, '-SM' combined with absence of an obvious external cause is naturally combinable with 'downward' direction.

The natural abilities of the human body being fairly limited to specific kinds of change of location, a number of theoretically possible combinations are ruled out. Three examples will be provided. Notice that a specification of 'feet' as 'instrument' (means of propulsion) combines with 'intentionality' and 'ground as supporting surface'. Absence of 'intentionality' does not combine

easily with 'upward direction', but is fairly common in connection with 'downward direction', e.g. 'vlistrao' (slip), 'katrakilao' (roll down), 'pefto' (fall (down)), 'gremizome' (collapse). 'Dependent motion' is linked with 'intentionality' as typical of animate moving objects, especially in the case of motion 'after' a person, e.g. 'kataōioko' (chase), 'kiniyao' (hunt, run after), 'akoluθo' (follow). In general, 'manner' of motion is linked to 'agentivity'. Notice the case of 'perpatao', 'trexo', 'skarfalono', 'piθao', and all their hyponyms, where the specific 'manner' of motion involved is a concomitant factor of 'agentivity'.

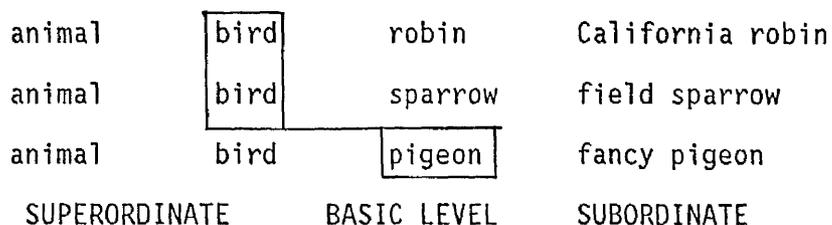
A specification of 'feet and arms' as 'instrument' is rarely (if at all) combinable with completely 'downward' direction. In section 4.2.4 it is argued that the gradient of the incline of the surface on which the motion is executed limits the number of possible combinations with different types of human body motion. Some of the observations made there can be re-interpreted in terms of the 'non-arbitrariness of categories'. At this stage, where none of these observations are elaborated on, choice between different interpretations or representations would be premature.

#### Notes on Chapter 4

1. If one compares different forms of the same verb, e.g. '*ime anevasmeni*' (I am ascended/mounted on) and '*aneveno*' (I am going up/ascend), one could say that the former is 'less motional' than the latter (as already argued in Chapter 2). Participles like '*ime anevasmenos-i*' receive the most stative interpretation that can be possibly attributed to a MV. Besides, it is possible to consider that CL verbs such as '*piyeno*' (go) are 'more motional' than CP ones involving 'partial motion' such as '*salevo*' (move slightly, stir).
2. In the field under investigation 'causativity' may be thought of as a 'criterial' (rather than a graded) property; it is mainly understood here as equivalent to 'motion due to external factors'. In Chapter 3 it is, however, shown that the issue is in general (i.e. irrespective of the specific semantic field) a controversial one. It is arguable that 'hit', for instance, is probably 'less causative' than 'kill', since in the former case it is not obvious what the change of condition of the object is. Within the field of MVs it is shown also that there is at least a difference in degree of causation between 'direct' and 'indirect' causatives and that gradation may be detected both within the manipulative and the non-manipulative kind of causation. In short, there is good reason to believe that 'causativity' itself should be regarded as graded.
3. I am not saying that Nida is suggesting any such absurdity. I am simply trying to show what the results would be if we were to push things to their logical conclusions.
4. The lexicon of MG bears witness to a 'diglossic' sociolinguistic past (see Ferguson 1959, Kazazis 1982). Present day Greek as used by most speakers involves a large number of 'katharevousa' elements which cannot be ignored. Kazazis (1982:111) observes

that many forms which were originally 'katharevousa' are "part of the vernacular of some, and sometimes most, speakers of Greek", and that the combinations of originally 'katharevousa' elements present in the speech of educated Greeks differ from one idiolect to another. What constitutes standard 'dimotiki', in other words the standard language spoken in large cities (or 'Koine Nea Elliniki') is still a matter of great debate. Therefore, the judgments expressed here are in part subjective, although my intuitions were constantly checked against those of other native speakers and a lot of use was made of the material drawn from the newspapers, magazines and books mentioned in 1.4. I consider that there would be little disagreement as to the status of items marked S1 and S3. The former are distinctly 'learned', of 'katharevousa' origin, and their use is restricted to the speech of educated speakers. The latter are linked to 'popular' origin, literary use or restricted to 'rural speech'.

5. This observation can be associated with Verschueren's (1981:336-7) remarks on the following example of a taxonomy:



Verschueren observes that the

"inhabitants of some pigeon-infested European cities may be expected to have PIGEON as a basic level term for pigeons and BIRD for all other birds".

Verschueren intends this as an example of the fact that there is no simple correspondance between cognitive structure and biological hierarchy. There is, however, an alternative way of interpreting it. For city dwellers in general, 'pigeon' is likely to be the most characteristic bird they know, i.e. the most prototypical member of the category 'bird'. It may therefore acquire 'basic level' status, i.e. generalize through moving one level up.

6. The notion of incorporation of abstract, formal components is alien to the theoretical framework adopted in the present study. Nevertheless, the semantic information associated with directional/locative Adv's can be 'translated' into descriptive and 'informal' appropriateness conditions in a fairly straightforward manner.
7. This is the most concise presentation of material and conclusions also included in other works of Rosch, e.g. Rosch (1976) reprinted in Johnson-Laird (1977).

## 5. ELICITING INFORMATION FROM NATIVE SPEAKERS

### 5.1 Semantic similarity sorting tasks and cluster analysis

As already demonstrated, the semantic information pertaining to the verbs under consideration is both complex and of different types. No analysis or classification can encompass it all, no matter how detailed it may be. It is also suggested that the overall organization of the domain is complex and that specific patterns can be shown to depend on the items chosen. By implication, any tests which might be set up to elicit information on structuring and properties from native speakers will be of limited use. The necessity, however, of obtaining such information has been stressed at many points throughout the preceding discussion. Besides, there is a lot of evidence from a number of studies, that part of the information in the subjective lexicon can be revealed through semantic similarity sorting tasks and prototypicality tests.<sup>1</sup> Both types of tests are therefore used and their results will be reported and discussed in what follows.

In semantic similarity sorting tasks (henceforth SST) subjects are asked to group together items which they consider to be more closely related in meaning than they are with other items of the set offered to them. They are therefore required to understand the meanings of these items in whatever way available to them and to weight and combine such criteria, i.e. to decide on their relative importance, in whatever way they deem fit. The general idea is that such information cannot be extracted directly and that inferences can be made on the basis of a careful consideration of the resulting clusters of items. One of the methods of processing the data obtained from individual subjects' groupings has been extensively used by Miller (1969, 1971, 1972), Fillenbaum and Rapoport (1971), Long (1975) and others. It involves tabulating co-occurrences of items in the form of a matrix and then applying cluster analysis to this data matrix, in order to transform it into clusters. This

method of obtaining a hierarchical clustering scheme (henceforth HCS) is the one applied here.

A number of points have to be made at the outset concerning the goal and the appropriateness of the method used. Miller's original idea was that clusters obtained by the procedure just mentioned would somehow correspond to the taxonomic structures proposed by various theorists for the same or similar types of items and that they would also reflect the semantic features/dimensions involved. This suggests that if a specific set of items involves features which are not hierarchically ordered (taxonomically organized) cluster analysis (henceforth CA) would be inappropriate. A further assumption is considered to underly this method, namely that items which have been judged as similar (and therefore grouped together) have been grouped on the same basis, i.e. that the same semantic property was somehow felt as being responsible for the groupings of all the subjects who put the same items together. The question is therefore raised as to whether such a procedure is applicable to sets of items which are not necessarily considered to involve independent and hierarchically ordered properties and especially to sets of items which may be judged as similar on a number of different semantic criteria.

There are two possible answers to these problems, a theoretical one concerning the 'nature' of cluster analysis as a statistical technique and an empirical one based on the possible interpretations of the results of specific sets submitted to this method of processing.

It has to be noted that CA is generally not involved with hypothesis testing (Anderberg 1973:11). It can be used as a discovery procedure and can help avoid forcing or imposing a particular structure on the data. This suggests, that if for instance, the prevailing factor responsible for groupings is not a property hypothesized as hierarchically higher than others, more than two main clusters will appear on the final HCS and the hypothesis in question will be either partly or wholly discarded. This does not, however, imply that we end up with uninterpretable and useless clusters. It simply makes

more difficult the task of interpreting the results, or rather, looking for an alternative explanation to hierarchical ordering of properties.

To be more specific, consider the example of kinship terms, which do not involve a strict hierarchy of properties. Since some subjects may put 'daughter' and 'son' together on the basis of some 'generation' property, others on the basis of 'lineality' (consanguinity), and still others on the basis of both properties, the final cluster cannot be characterized by only one of these properties, but will have to reflect both. Moreover, a fourth group of subjects may put 'daughter' and 'son' in separate clusters on the basis of the 'female' vs 'male' distinction. The final HCS will show at least whether the 'sex' property is more salient than the combination of 'consanguinity' and 'generation' or vice versa (which will depend directly on how closely related 'son' and 'daughter' appear to be, i.e. on their number of co-occurrences). I cannot see why such a finding is less important than 'relative hierarchy' and I do not think that it involves a greater idealization than the 'hierarchy testing' interpretations.

A number of studies report the results of cluster-analysed SSTs carried out on sets of items which do not necessarily involve either hierarchical ordering or independence of features (e.g. Fillenbaum and Rapoport 1971 - verbs of 'judging', Long 1975 - motion verbs). These results are both 'plausible' and 'linguistically relevant' in the sense of Miller (1969:181-2). What is more important, they are also corroborated by other methods which do not involve hierarchical ordering, such as multi-dimensional scaling (Fillenbaum and Rapoport, *ibid.*).

A final note is in order at this point on what we expect the cluster-analysed SST to do in this particular investigation. The overall organization of the domain of MGMVs is clearly differently structured from that of any specific subset which can be given to subjects to sort out. It is not therefore possible to expect any test based on a subset to reveal the overall structuring (or prove the validity of an

already established one). It seems, however, possible to check the relevance of some properties arrived at through traditional linguistic analyses already discussed in previous chapters. It can be shown, also, that subjects can sometimes express the criteria on the basis of which they have put items together. It is interesting to notice, that such criteria rarely correspond to a single, independent property. The belief expressed at many points in the course of the preceding analysis that certain properties, or combinations of properties are more salient than others can at least be partly checked by considering both the results of the final HCS and individual pairings of items (appearing in the form of the number of co-occurrences in the data matrix).

#### 5.1.1 Semantic similarity tests involving English motion verbs

Miller (1972) and Long (1975) present results of SSTs involving English MVs. Their results are therefore worth looking at more carefully than those of other tests. The general picture seems to be that particularly strong hypotheses were tested and that these hypotheses cannot be refuted on the basis of the results obtained. The practice followed in both works of overgeneralizing the validity of findings based on a particularly small amount of data seems unwarranted, especially as it is also open to alternative interpretations. However, two issues raised in Miller (1972) are of special interest for our present purposes, namely relative salience and the incorporation of directional components.

One of Miller's SSTs involves 18 'directional' English MVs which are given to 52 subjects to sort into groups within sentence frames of the form "*He Verb (X)*". These sentence frames differentiate between causative and non-causative uses of the verbs in question. Miller is interested in demonstrating the psychological reality of the formal directional components he considers to be incorporated in the verbs, e.g. 'around', 'to', 'out', 'down'. He also examines the hierarchical relations between directional properties and causativity and concludes that the causative/non-causative distinction ('Objective'/'Reflexive' in his terminology) is strongest in the 'to'

cluster, but that the directional component is in general more salient and hierarchically higher than the causative/non-causative one.

A close look at the actual co-occurrences of verbs Miller gets shows that such conclusions are not wholly sustained. Consider first the data from the 'downward' motion group of items, which involves both causative and non-causative verbs and is probably the clearest case within this test. Each pair of verbs is followed by the number of co-occurrences it has in the matrix, i.e. the number of subjects who put the two verbs together:

(a) lower<sub>CAUS</sub> - drop<sub>CAUS</sub> -> 30

descend<sub>NON-CAUS</sub> - sink<sub>NON-CAUS</sub> -> 31

fall<sub>NON-CAUS</sub> - sink<sub>NON-CAUS</sub> -> 41

(b) drop<sub>CAUS</sub> - fall<sub>NON-CAUS</sub> -> 19

lower<sub>CAUS</sub> - sink<sub>NON-CAUS</sub> -> 18

lower<sub>CAUS</sub> - fall<sub>NON-CAUS</sub> -> 16

drop<sub>CAUS</sub> - sink<sub>NON-CAUS</sub> -> 16

(c) descend<sub>NON-CAUS</sub> - lower<sub>CAUS</sub> -> 28

descend<sub>NON-CAUS</sub> - fall<sub>NON-CAUS</sub> -> 28

The data in (a) and (b) suggest that when both items within the 'downward' group are CAUS or NON-CAUS they get the highest rates; if they do not share the property they get much lower scores. In fact, considerably fewer than 50% of the total number of subjects put the items in question together. The data in (c), however, seem to suggest that the causative/non-causative distinction does not play any role.

It must be pointed out that Miller's test does not involve any 'upward' motion verbs. Therefore the possibility of clustering the above subset ('downward' motion) with any other verb of the set offered to subjects is rather low. In the absence of any 'upward' direction verbs and on the basis of such limited and inconclusive evidence, Miller's claim that directionality is more salient than the causative/non-causative distinction is not well founded.

The data from the remaining directional verbs of the set are not any better. The 'around' group consists of what seems to me to be an inclusive term, i.e. 'turn' and its hyponyms. Clustering these items together may be interpreted as revealing the psychological validity of the 'type of' lexical relationship, i.e. hyponymic inclusion.

Within the group of verbs characterized by Miller as incorporating 'out', 'eject' and 'withdraw' have only 17 co-occurrences (again considerably fewer than 50% of the subjects put them together), although they are both causatives (in Miller's test). On the other hand, 'exit' and 'leave', both non-causatives but belonging to different 'directional' groups, namely 'out' and 'away' respectively (according to Miller's classification) score 42, i.e. higher than the best case within the 'downward' group.

Consider, further, the set of verbs Miller classifies under 'together':

assemble<sub>CAUS</sub> - collect<sub>CAUS</sub> -> 38

assemble<sub>CAUS</sub> - gather<sub>CAUS</sub> -> 40

gather<sub>CAUS</sub> - collect<sub>CAUS</sub> -> 50

Miller takes these high ratings as proof of the existence (actually the importance) of the 'directional' (as he calls it) preposition 'together'. But to start with, these verbs are near-synonyms, so their being clustered together is not much of a proof for anything as concrete as a 'directional preposition' (although their common property is certainly linked to some condition of 'putting things

together' and we do not really need a test to prove it). What is probably more interesting, though, is that although they are all three supplemented with an "X" (in the sentence frames), the last pair gets a much higher score. One possible explanation could be that 'assemble' may be associated with a different (linguistic) frame than the other two (e.g. assemble pieces to construct a unit, while 'gather' and 'collect' may not be so understood). Be that as it may, Miller's second attempt at establishing the 'incorporation' of specific components/features and a feature hierarchy on the basis of such results seems rather unsatisfactory.

Once again the highest scores correspond to a combination of two common properties: presence of causativity and 'putting things together', where this latter property is certainly not of the same status as 'downward' or 'around', i.e. purely 'directional'.

Miller also considers the 'together' group in connection with 'approach' and 'visit', the former of which he classifies under 'toward' and the latter one under 'to'. Notice now the score of this last pair: approach X - visit X -> 26 and Miller's comment:

"The reflexive-objective differentiation is strongest for the to clusters: *approaches* and *visits* were clustered together with *assembles*, *collects* and *gathers* by only one or two judges. Since the directional prepositions are really *toward* and *to* for *approaches* and *visits* (hence a certain reluctance to put them in the same pile) and *together* for the objective motion verbs *assembles-collects-gathers*, the tendency to keep them apart may reflect the directional component as well as the reflexive-objective (or causative) component". (p.358)

But the score of the 'approach' - 'visit' pair is almost the average of what he gets in the particularly strong 'downward' group and corresponds exactly to 50% of the answers, although according to Miller's analysis, 'approach' and 'visit' are nowhere near as close in 'directionality' as the groups exhibiting hyponymic relations, the 'downward' motion group and the near-synonyms already discussed. As for the 'together' group, it is doubtful whether it contains verbs mainly understood as motion verbs and equally doubtful whether

'together' is to be understood as synchronically related to the purely 'directional' 'to'.

Consider finally the 'rotary motion' set results which get a great number of co-occurrences, indicative of the relative salience (in my opinion) of the property of 'rotation' or 'change of orientation' compared to other 'directional' properties (such as those signalled by 'to', 'away', etc.):

(a) turn<sub>NON-CAUS</sub> - pivot<sub>NON-CAUS</sub> -> 48

rotate<sub>CAUS</sub> - spin<sub>CAUS</sub> -> 47

(b) pivot<sub>NON-CAUS</sub> - spin<sub>CAUS</sub> -> 30

rotate<sub>CAUS</sub> - pivot<sub>NON-CAUS</sub> -> 29

turn<sub>NON-CAUS</sub> - rotate<sub>CAUS</sub> -> 29

turn<sub>NON-CAUS</sub> - spin<sub>CAUS</sub> -> 28

It is again fairly clear that the causative/non-causative distinction plays a decisive role, otherwise the differences of the scores in (a) and (b) are not explainable.

To sum up, Miller's claim that " the directional component is far more salient than the reflexive-objective one and might be said to dominate it hierarchically" (Miller 1969:176, 1972:358) is not well sustained by the evidence he provides through this test, especially if one takes a close look at specific co-occurrences. Certain properties linked with 'directionality' are more salient than others. Combinations of causativity and directionality are clearly most salient. General conclusions pertaining to relative salience and especially to relative hierarchical order are difficult to draw on the basis of a rather small piece of data. As already pointed out, the organization of the domain as a whole will be different from that of any specific subset; and a hierarchy of properties (if distinct from salience) could be better approached in an investigation of a

much larger context (a whole domain, rather than any specific subset).

If one wishes to check the psychological validity of a major (high level) property such as causativity, for instance, one is obliged to provide a fairly large number of items to be sorted out. This is precisely what Miller (1969, 1971) does in the case of nouns, wishing to test the validity of the 'object' - 'non object' distinction. Subjects are given 42 items to sort out. Miller's observations on the resulting clusters are very eloquent:

"Did the semantic marker ['object', 'non object'] that was deliberately introduced into the set of words reappear in the analysis? Yes and no. The clusters obtained did not contradict the hypothesis that our judges were sorting with this semantic distinction in mind, yet their data indicate a finer analysis into at least five, rather than only two clusters, so the object marker is not completely verified by these data".

(Miller 1971:577)

In practical terms this means that subjects tend to form small groups, especially when faced with more than 10 or 20 items which are not governed by obvious hyponymic relationships, and that therefore high level distinctions are somehow lost. This does not mean that they have no psychological reality or that they are not hierarchically higher than other distinctions or properties. It probably means that hierarchy cannot be tested in this way, but that relative salience of combinations of properties can. Smaller clusters and subclusters provide fairly reliable evidence to this effect.

An important issue for the present study is raised in Long (1975), namely the relation between hierarchical order (of properties) and number of shared properties. An obvious question is which properties are taken into account (since they are not directly provided by subjects) and a related one is whether they correspond to a most general or a particular understanding of the items tested. Long makes the assumption that features (properties) are of equal importance, which is not accepted here and which she recognizes herself to be an oversimplification. A careful look at her results

shows that relative salience of certain combinations of properties provides a better explanation of the data than number of shared attributes and that, as in Miller's tests, specific co-occurrences are worth considering in detail (besides the overall HCS).

Long's study involves 15 English MVs analysed on the basis of Miller's (1972) classification but slightly modified and restricted to those specific meanings of the verbs which corresponded to the actions shown to subjects on a videotape. Two groups of subjects are asked to sort the verbs out. One group has seen the videotaped actions, the other one performs a purely verbal test, i.e. a SST based on the same set of verbs written on separate cards without any supplementary information as to how they are to be understood. The results are shown on a similarity matrix (presenting the number of co-occurrences for each pair of items) which is further transformed into clusters by applying CA. The similarity matrix is compared to a matrix of shared features (for each pair of verbs), which Long has constructed on the basis of the analysis already mentioned (a modification of Miller's 1972 components and the actions presented on the videotape).

Despite the fact that Long's hypothesis is also very strong (correlation of shared attributes to feature-hierarchy) and her own remark that it is not appropriate to test the correlation between the two measures statistically "since the numbers within each of the matrices are not completely independent" (ibid.:58), the correlation is so high (.80) that Long's hypothesis cannot be rejected. This means that the possibility of correlating the number of attributes arrived at on the basis of a traditional linguistic analysis with the number of co-occurrences in an SST matrix cannot be ruled out. The correlations that are of interest here concern the judgments of the 20 subjects performing the verbal SST (what Long calls the 'simple sort group'). The maximum number of co-occurrences in the SST matrix would be 20 (i.e. 20 subjects). The maximum number of shared attributes/properties in Long's matrix is 4.

Each pair is followed by the number of co-occurrences it gets in the SST matrix and then by the number of shared properties it has according to Long's analysis. The best correlations she gets are:

jump - hop -> 18 : 4 (-Loc, -Dir., Manner, specific Manner)

push - pull -> 17 : 3 (Spec.direct., +Dir., -Propellent)

Notice, however, that Long herself observes (ibid.:103) that a pair of words may differ along several dimensions and offers jump-hop as a case in point, suggesting that they differ in the number of feet used, in 'direction' ('up and down' for 'jump' vs 'along' for hop), etc. So even the pair which gets the highest number of co-occurrences (and the best correlation with number of shared attributes) is considered as a possible example of 'multiple contrasts'. Compare the co-occurrences of both items to 'dance':

jump - dance -> 14 : 3 (Manner, -Dir., -Loc.)

hop - dance -> 13 : 3 (Manner, -Dir., -Loc.)

It can be argued that, unlike the remaining items of the set offered to subjects, all these three verbs involve a property of 'relative absence of seriousness of purpose' (as suggested in 4.2.4). This can explain why over 50% of the subjects cluster them together. Besides, although 'jump' and 'hop', may be said to differ on a number of points, they do refer to particularly similar motions, especially compared with the remaining verbs of the set. This property, combined with the one already mentioned is probably enough to keep them together as the strongest pair in this test. The explanation of 'number of shared attributes' cannot be considered separately from 'type of attributes' and their relative salience.

To appreciate this, compare the items already discussed with the 'push-pull' pair, which is also considered to involve 3 shared properties but has almost as many co-occurrences as the 'jump-hop' one (said to involve 4). Antonymous pairs can be accounted for on

the basis of 'one feature difference' but especially if only 4 features (properties) are taken into account, the difference in question becomes disproportionately great. There is strong evidence (to be discussed in the SST on MGMVs) that antonyms or near-antonyms are only separated if the possibility arises of including either member in a group marked for a particularly salient property (e.g. downward/upward motion). Number of shared properties cannot explain this tendency of subjects' groupings.

Long's worst correlations are also worth considering carefully. In order to appreciate some of these, it should be noticed that both groups of subjects (the 'simple sort group' and the 'taped sort' one) produced similar results, with the notable exceptions of 'spin' and 'shake'. To start with, this implies that subjects perform the task with particular and not general meanings in mind (Long 1975:63). The videotaped actions corresponding to the items tested are particularly 'good instances' of the categories in question, as can be easily attested in Long's description of these actions (ibid.:35). This constitutes in itself very good evidence in favour of the prototypical rather than the most general understanding of items, although Long is not concerned with Prototype theory.

The two exceptions are precisely 'spin' and 'shake', where the former action involved stepping in circles in one place and the latter one standing in one place, holding a ball out in front of the body with both hands and shaking it vigorously up and down. Long's analysis of the corresponding verbs in the form of features is based on the above understandings of these verbs. Therefore the fact that only these items in the set offered can be understood either as causatives or non-causatives cannot be taken into account. The ambiguity arises only for the 'simple sort group' who have not seen the videotaped actions.

In this light, consider briefly some of Long's worst correlations:

shake - hit -> 11 : 4

hit - carry -> 9 : 3

shake - spin -> 11 : 0

carry - drop -> 14 : 1

shake - carry -> 9 : 3

drop - kick -> 6 : 2

The verbs 'shake' and 'spin' are completely isolated in Long's own hierarchical analysis, which draws a line between causatives and non-causatives and never considers intra-group shared properties, hence the 0 number of shared properties, which predictably does not correlate with the number of co-occurrences (about 50%). On the other hand 'shake' and 'hit' are attributed the maximum of common properties, as the non-causative use of 'shake' is ignored. Something similar applies to the 'shake' - 'carry' pair.

The verbs 'hit' and 'carry' are intuitively felt to be rather dissimilar. Even the shared element of causativity is less clear in the case of 'hit' (see 3.1). Only the latter verb is a clear case of a 'causative of motion'. If 'hit' is also considered a causative of motion, then '-Propellent' is erroneously included by Long as a common property of the pair. On the other hand, the similarity of 'carry' and 'drop' can be most easily explained in terms of frames, in the sense of Brown and Yule (1983:238-47) or Verschueren's (1981:338) 'prototypical scenes'/'frames'. In common terms one can drop something that one is carrying. If number of attributes is to be used as a measure of semantic similarity, then '-Propellent' should be a common property in addition to 'non-causative'. The prototypical understanding of 'drop' is more likely than not be characterized by this salient property (contrary to Long's analysis). This could also provide a better correlation in the case of the last pair 'drop-kick', which would be shown as sharing only the causative element and in different degrees at that.

To sum up, Long's study provides fairly reliable evidence in favour of a prototypical rather than a general understanding of categories (and of those pertaining to MVs in particular). It also raises an intriguing question as to the relation of number of shared attributes resulting from a traditional linguistic analysis of MVs to semantic

similarity judgments of native speakers. It seems reasonable to expect that such correlations are not completely impossible, provided the 'right' sort of attributes are taken into account (i.e. prototypical rather than general ones) and the issue of relative salience is allowed to play a decisive role.

#### 5.1.2 A semantic similarity test with 34 Modern Greek motion verbs

As already pointed out in 5.1.1, particularly strong hypotheses cannot be easily tested with cluster-analysed SSTs. On the other hand, if quite a lot is known about the items tested, CA need not be used merely as an exploratory device. A middle-course seems therefore most appropriate. We cannot expect to obtain results decisive for the organization of the whole domain but can include a fairly large number of items which we consider representative of the overall domain. The inferences that can be made may involve number of attributes, but these attributes need not be either homogeneous or independent or of equal weight. The SST to be described in what follows was conducted with these preliminaries in mind, some of which are the direct outcome of the preceding observations on Miller's and Long's work.

Some of the properties discussed in 4.2 are applicable both to a most general and a prototypical understanding of the relevant verbs. At a number of points differences between the two understandings are pointed out. Checking all these properties would be an impossible task for any single test. It seems, however, feasible to attempt checking the validity of what have been posited as large distinct categories within this area and their interrelations. These are:

- Causatives vs non-causatives, agentives vs non-agentives
  
- Change-of-location vs change-of-position and 'distance covering' within the CL group

- General motion vs 'manner' and whether a difference in 'medium' plays an important role or not
  
- Vertical vs indeterminate direction, change of orientation vs 'random walk', 'dependent motion', 'path' (passage).

a. Choice of data units

Fifty subjects were chosen, all of whom were native speakers of MG residing in Athens (but not necessarily brought up in Athens), aged between 20 and 50. Pilot work previously conducted had shown that a certain standard of education was absolutely indispensable: subjects should be able to classify on the basis of specific instructions (listed below) and understand, for instance, the difference between 'semantic similarity' and free-association (once it is explained to them). The only 'categories' of people excluded were linguists and philologists (as they could have had preconceived ideas on the material, or 'specialist' knowledge). Since there was no particular scheme of sampling, the sample can be considered random and representative of the educated part of the population.

b. Choice of variables

The fifty subjects were each given 34 randomly arranged cards with a MGMV written on each card. The variables (terms used) were rather carefully chosen so that they would 'conform' to the following principles: (a) They should be very common MVs in everyday use presenting 'basic level' categories. (Hyponymic relations are checked in the test on 'Prototypicality' in a subsequent section.) (b) They should be quite representative of the categories discussed in 4.2 (also appearing in List VIII) and supplemented with some CL causatives of motion. Two categories were not represented as the material they contained seemed to me less common in everyday use than the remaining items. These appear in List VII as 'Partial motion not resulting in different posture' and 'Partial motion (which is) regular/repeated'. Only two genuine synonyms were included: '*periferome*' and '*triyirizo*' (roam around). The reason for including

these was to check whether morphological distinctions (e.g. '-o' vs '-ome' endings corresponding normally to active vs mediopassive forms) would affect the categorization (i.e. subjects' judgments). The pair 'anevazo' - 'ipsono' receive identical translations in English (i.e. raise) but are not genuine synonyms. They were both included in order to check whether phonological factors would affect subjects' judgments (e.g. make subjects group 'anevazo' with 'aneveno' (ascend) rather than 'ipsono'). Two non-causative transitives were also included: 'pernao' (pass) and 'diasxizo' (traverse) to check whether subjects would classify them with causative transitives or non-causative intransitives. A number of phonologically identical causative/non-causative pairs was also included without any indication as to which one (i.e. which member of the pair) subjects were supposed to take into consideration. The result is particularly interesting concerning the direction of lexicalization and/or Prototype theory.

### c. Instructions

Subjects were given the usual instructions for such tasks which are translatable into English as follows:

1. Put these verbs into groups ('categories') on the basis of their semantic similarity.
2. Take into account their literal meaning only and not any figurative uses they might have; also, their most general meaning, i.e. do not think of a particular sentence or 'image'.
3. Each verb can belong to only one group, the one to which it is most akin.
4. You can make as many piles (groups) as you wish; a verb can be the only member of a category.
5. The time you will need for sorting these verbs into groups is of no importance.

Pilot work had also shown that subjects had to be given an explanation and an illustration of the difference between semantic similarity and free-association (see Rosch's instructions for prototypicality tests). This was done orally and they were then asked if they had any questions. Most of them did the task individually, at different times and in different places. After completing their groups they were asked to comment on the groupings if they wished and a note was taken of what they had to say. The explanations offered for some groupings are particularly interesting and will be discussed separately. A common complaint was that it was difficult not to think of any particular meaning, sentence or 'picture' associated with a given verb.

#### d. Cluster analysis

A minimum of 3 and a maximum of 17 groups were formed; the mean of piles was 9.92. A matrix of similarity was formed showing for each pair of verbs the number of subjects who placed that pair in the same group. The matrix was then converted into a hierarchical clustering scheme, following Johnson (1967). The basic principle of Johnson's method is that at each step, a variable is linked with the closest cluster or (other) variable. Starting with 34 variables in this particular case we merge them step by step to one cluster. (Both the matrix and the HCS are reproduced overleaf.)

At point 19 of the HCS, six clusters can be identified, labelled here A - F and including the following items:

A: items 6 to 8

*kaθome, ksaplono, yonatizo, sikonome*

B: items 32 to 30

*skarfalono, aneveno, kateveno*

C: items 5 to 33

*kilao, ylistrao, vuljazo, sernome*

1) <i>ksaplono</i> lie	0	11	1	38	4	1	1	0	2	1	1	3	1	9	1	1	0	0	2	1	0	1	0	2	1	0	26	0	40	5	2	0	5	3
2) <i>ylistrao</i> slip, slide	3	24	8	6	9	7	4	4	7	3	3	6	3	30	3	3	3	0	1	2	0	3	0	6	3	0	2	0	3	40	5	0	2	
3) <i>ferno</i> bring	1	0	0	0	0	0	0	0	9	0	2	0	11	0	0	0	0	1	14	0	11	1	10	1	2	48	0	12	0	2	1	1		
4) <i>strivo</i> turn	9	4	6	1	8	9	10	3	6	10	8	0	15	3	15	15	8	1	0	8	1	8	1	11	8	0	2	0	2	7	22			
5) <i>kilao</i> roll	2	22	6	6	10	6	3	3	7	2	4	6	2	26	2	2	2	2	2	1	2	2	2	5	2	2	2	2	3	1				
6) <i>kaðome</i> sit	0	7	1	36	4	1	1	0	2	1	1	2	1	6	1	1	0	0	2	1	0	1	0	2	1	0	30	0	3					
7) <i>tinazo</i> shake up	0	0	2	0	1	1	0	21	3	0	2	22	0	2	0	0	0	18	31	0	20	0	17	0	0	13	1	7						
8) <i>sikonome</i> rise	2	8	13	28	7	3	2	2	6	3	17	0	2	4	2	2	2	10	0	3	3	3	9	4	3	0	2							
9) <i>stelno</i> send	1	0	0	0	0	0	0	10	0	1	0	11	0	0	0	0	2	10	15	0	11	2	10	1	1	0								
10) <i>beno</i> enter	19	3	7	1	11	11	17	2	6	22	10	0	17	2	12	13	20	0	0	12	0	49	0	11	0									
11) <i>perpatao</i> walk	21	9	11	2	8	35	14	7	20	16	9	0	14	2	16	16	13	0	0	16	0	11	0	0										
12) <i>anevazo</i> take up	0	0	13	0	5	0	0	10	2	0	14	20	0	2	0	0	0	48	14	0	31	0	0											
13) <i>vveno</i> exit	19	3	7	1	11	11	17	2	6	22	10	0	17	2	12	13	21	0	0	12	0	0												
14) <i>kremao</i> hang	0	0	6	0	3	0	0	8	1	0	6	20	0	2	0	0	0	30	18	0	10													
15) <i>akoluðo</i> follow	21	3	4	1	6	10	19	1	4	27	6	0	19	1	19	19	19	0	0	15														
16) <i>rixno</i> throw	0	0	0	2	2	1	0	22	3	0	0	28	0	4	0	0	0	16	2															
17) <i>ipsono</i> raise	0	0	12	0	4	0	0	9	2	0	13	20	0	2	0	0	0	0																
18) <i>fevjo</i> leave	37	4	4	1	7	13	22	3	4	39	6	0	17	2	15	15	1																	
19) <i>periferome</i> roam around	15	6	4	1	5	10	23	2	5	18	5	0	25	3	50	0																		
20) <i>trixirizo</i> roam around	15	6	4	1	5	10	23	2	5	18	5	0	25	3	0																			
21) <i>vuljazo</i> sink	2	15	5	10	13	3	2	1	4	2	4	11	2	3																				
22) <i>viasxizo</i> traverse	19	4	5	1	9	9	39	2	4	19	9	0	4																					
23) <i>gremizo</i> pull down (a precipice)	0	1	4	4	8	0	0	8	0	0	3	6																						
24) <i>aneveno</i> ascend	11	3	39	2	35	7	7	5	14	7	0																							
25) <i>erxome</i> come	38	4	5	1	7	13	21	3	5	1																								
26) <i>pidao</i> jump	4	8	15	3	11	24	5	18	6																									
27) <i>petao</i> fly, throw	2	4	7	0	3	10	3	1																										
28) <i>pernao</i> pass	19	4	5	1	8	9	2																											
29) <i>trexo</i> run	11	10	13	1	9	3																												
30) <i>kateveno</i> descend	8	5	23	9	0																													
31) <i>ðonatizo</i> kneel	1	12	1	2																														
32) <i>skarfalono</i> climb	4	11	0																															
33) <i>sernome</i> crawl, creep	4	5																																
34) <i>pijeno</i> go	0																																	
	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1



D: items 16 to 14

*rixno, tinazo, gremizo, petao, ipsono, anevazo, kremao*

E: items 10 to 26

*beno, vyeno, periferome, triyirizo, pernao, diasxizo, piveno, erxome, fevyo, akoluθo, trexo, perpatao, piðao*

F: items 9 and 3

*stelno, ferno*

The content of these clusters can be tentatively specified as follows:

A (6 - 8) change-of-posture (CP) non-causatives

B (32 - 30) vertical change-of-location (CL) non-causatives

C (5 - 33) non-causatives, contact of major part of object with environment, smooth motion

D (16 - 14) change-of-location (CL) causatives

E (10 -26) change-of-location (CL) non-causatives, indeterminate direction

F (9 - 3) deictic CL causative pair

One verb '*strivo*' (turn) is not included in the above clusters as it joins clusters D - F at a very late stage (15) and clusters A - C at (8).

At point (27) certain subclusters can be identified: D includes two subclusters, one consisting of items 16-23 '*rixno*' (throw), '*tinazo*' (shake up), '*gremizo*' (pull down) and another one consisting of items 17-14 '*ipsono*' (raise), '*anevazo*' (take up), '*kremao*' (hang). E includes three pairs and 2 more subclusters: items 10 and 13 '*beno*' (enter), '*vyeno*' (exit), items 19 and 20 '*periferome*', '*triyirizo*' (roam around), 28 and 22 '*pernao*' (pass), '*ðiasxizo*' (traverse). The two last pairs form a subcluster at a lower stage (25). A further subcluster in E consists of items 34-15 '*piveno*' (go), '*erxome*'

(come), 'fevyo' (leave), 'akoluθo' (follow) and a final one includes a pair of items 29 and 11 'perpatao' (walk) and 'trexo' (run) which are joined at a lower stage (24) by 'piθao' (jump).

The matrix has all the co-occurrences of the 34 items tested. As already noted, both the content of the HCS and the co-occurrences of the matrix need to be considered carefully.

#### e. Interpretation of results

On the basis of the clusters in the HCS and subjects' comments on the individual groups they formed, it can be safely argued that in the absence of any contextual (or other) information, all the verbs of the set are mainly understood as referring specifically to human motion. The 'most general' meaning ideal is not operative, in this SST at least.

The following items have both a causative and a non-causative interpretation: 'ksaplono' (lie down), 'yonatizo' (kneel), 'kilao' (roll), 'vlistrao' (slide, slip), 'vuljazo' (sink), 'strivo' (turn), 'petao' (fly, throw), 'trexo' (run). (see 3.2) With the notable exception of 'petao', none of the remaining items appears in the causatives cluster. This may imply that the non-causative understanding is the most prominent one, which constitutes additional evidence in favour of deriving such causatives from their non-causative counterparts. The two interpretations of 'petao', i.e. 'fly' and 'throw', although they have in common something like 'move in the air', are evidently kept distinct. Almost half of the subjects (18) put 'petao' together with 'piθao' (jump), i.e. as a non-causative, while it also has 22 and 20 co-occurrences with 'rixno' (throw) and 'tinazo' (shake up) respectively, i.e. as a causative. Besides 'petao', 'strivo' (turn) has a causative and a non-causative interpretation, which are equally common. It is perhaps noteworthy that it is almost never clustered together with the causatives of this set.

It seems that human motion is mainly understood as 'intentional'/ 'agentive'. Within the E cluster three characteristically agentive verbs: 'trexo' (run), 'perpatao' (walk), 'piðao' (jump) join the cluster at a lower stage, but this can receive a number of interpretations not directly related to agentivity, but rather to properties such as 'legs as instrument' or 'manner'.

Another typically agentive verb, namely 'akoluθo' (follow), is part of the sub-cluster of items 34-15 which are not necessarily agentive. The most unexpected clustering in this respect involves 'sernome' (creep, crawl), which belongs to the group characterized by most subjects who put its constituent items together as involving 'accidental', 'negative', 'unintentional' motion. As already pointed out, 'sernome' cannot be 'unintentional', in the sense that it requires (intentional) motion of arms, legs, etc. The obvious explanation is that it is quite atypical of human CL and is associated with 'undesirable' situations. This, combined with something like 'major part of the body in contact with ground' can explain the unpredicted result, i.e. its appearing together with items which are very low on an agentivity scale, but share the above properties with it. No general, traditional classification that I know of (including the one attempted in 4.2) accounts for this piece of information.

Notice, further, in this respect, that 'intentionality' or 'agentivity' is not in the least ignored, and that it is not an independent property. The only verb in the whole set necessarily involving 'water' as 'medium' namely 'vuljazo' (sink), is also part of the 'negative - accidental' cluster C. Unintentional or 'non-agentive' motion is linked with properties like 'accidentality' and 'undesirability' and is often combined with 'major part of the body in contact with environment'. It can be also shown that it is somehow combined with 'downward' motion.

Cluster B contains 'vertical' motion non-causatives. The salience of 'vertical' direction has been pointed out more than once. Notice that there exist co-occurrences of items sharing a property of

'upward' or 'downward' direction and differing even in causativity, e.g. *'ipsono'* (raise) - *'aneveno'* (ascend) -> 13, *'ipsono'* (raise) - *'skarfalono'* (climb) -> 12, *'kateveno'* (descend) - *'gremizo'* (pull down) -> 8. These scores are much lower than the ones corresponding to the pairs which share the property of (non-) causativity. This will not be considered here as evidence in favour of the salience of 'causativity' vs 'verticality' or some specific vertical direction, contrary to Miller's (1972) practice criticized in 5.1.1. What these results show is that the combination of vertical CL with absence or presence of causativity is extremely salient. Hence: *'aneveno'* (ascend) - *'skarfalono'* (climb) have 39 co-occurrences although they differ in the specification of 'manner' and 'instrument' and *'aneveno'* (ascend) - *'kateveno'* (descend) score 35, although the former is 'upward' and the latter 'downward'. Similarly, in the causatives cluster D, *'anevazo'* (take up) - *'ipsono'* (raise) have 48 co-occurrences, *'anevazo'* - *'kremao'* (hang) score 31 and *'ipsono'* - *'kremao'* -> 30.

The last 2 pairs mentioned in connection with verticality and causativity provide a further piece of unpredicted information. The verb *'kremao'* (hang), far from being understood in its most general sense which involves only 'change of point-of-support' (see List VII), is obviously felt to involve 'upward' CL. This can be only explained if the prototypical instances of its application are taken into consideration, linked with hanging clothes on a hat-stand and pictures on the wall. All these involve typically raising the object in question. This leads indirectly to the conclusion that cluster A items are probably not understood as involving 'change of point-of-support' either, but rather 'change of posture'. This is reinforced by subjects' comments on the content of A (or some part of it), characterizing it as 'different positions of the human body'. As already pointed out in 4.2 this is certainly not the 'most general' understanding of the verbs in question, namely *'ksaplono'* (lie down), *'kaθome'* (sit down) and *'vonatizo'* (kneel).

The distinction between CP and CL is not ignored, although in the absence of any CP verbs which are not also 'change of posture', it is impossible to decide which particular property is taken into account

when they are clustered together. What is worse, all the CP non-causatives of the set offered to subjects involve 'downward' motion as well, with the exception of 'sikonome' (rise). Now this last item can be either CL or CP. In either case it involves 'upward' motion. It is perhaps indicative to notice that 'sikonome' is judged as much closer to the CP group, as this is the interpretation it receives when applied to human motion. Notice that it has 30 co-occurrences with 'kaθome' (sit down). This is the highest score for 'sikonome' and may imply that it is understood as its antonym. It also has 28 and 26 co-occurrences with 'yonatizo' (kneel) and 'ksaplonο' (lie down) respectively. The combination of 'vertical' motion, CP and absence of causativity can explain these scores. It is important to notice, however, that these properties are not in the least independent in this cluster. 'Change of posture' is typically 'vertical' and 'non-causative' (since all these verbs are mainly understood as involving 'human body position'). Combinations of properties are often better explainable in terms of typical 'scenes' or 'frames' than in terms of most general understandings of isolated items. In practical terms, 'sikonome' (rise) can be easily interpreted as part of a scene where somebody who is seated, kneeling or lying down, 'rises' (stands up). 'Verticality' and 'absence of causativity', although extremely salient, as already shown, cannot explain the behaviour of 'sikonome'. It has only 17 and 13 co-occurrences with 'aneveno' (ascend) and 'skarfalono' (climb) respectively, although they all share 'upward' motion (and not just 'verticality'), CL and absence of causativity. These differences are only explainable if 'sikonome' is typically interpreted as implying 'change of posture'.

There are two verbs in the set offered to subjects, 'diasxizo' (traverse) and 'pernao' (pass), which were categorized under 'path' (or 'passage') in 4.2. They appear together 39 times, for 10 of which they form a separate group. In this sense, the relevant property may be said to have some psychological validity, at least when combined with absence of causativity. What is more interesting, they are both closer to the 'random walk' verbs, i.e. 'periferome' and 'triyirizo' (roam around) with which they have 25 co-occurrences, than to the remaining non-causatives in the same cluster E. This may

be interpreted as implying that 'absence of direction and goal', which is a necessary property of the 'random walk' group and a prototypical one of these verbs has some validity. Alternative explanations are also possible. Notice that '*pernao*' (pass) is often used as 'pass by' or 'drop in'. A scene involving roaming around and passing by various places while doing so may be responsible for linking '*pernao*' with the 'random walk' verbs.<sup>2</sup>

There is one example of 'change of orientation' or 'rotary motion', namely '*strivo*' (turn), which is the most isolated verb of this set, as it appears 22 times by itself. The suggestion made in 4.2.3 that change of orientation may be linked with 'random walk' is not completely unwarranted on the basis of test results, as '*strivo*' has 15 co-occurrences with the 'random walk' verbs. Its 15 co-occurrences with '*ðiasxizo*' (traverse), however, are not explainable on the basis of the analysis in 4.2.3.

There is further one example of 'dependent motion', the verb '*akoļuθo*' (follow) which is also fairly isolated (15 times by itself). This is not sufficient evidence in favour of postulating 'dependent motion' as a separate category (as suggested in 4.2.2). Although '*akoļuθo*' is the only verb in this set which combines 'motion after somebody/something' linked with strong 'intention' (as suggested in 4.4), it is fairly well integrated within the sub-cluster of E consisting of items 34-15, namely: '*piveno*' (go), '*fevyo*' (leave), '*erxome*' (come). This is not explainable on the basis of the analysis offered in 4.2. An alternative interpretation seems much more plausible, which is based on the fact that '*akoļuθo*' has 25 co-occurrences (the maximum score for this verb) with '*erxome*' (come). It is quite probable that '*akoļuθo*' (follow) is typically linked with 'someone going purposefully after someone else', i.e. 'going towards some other person'. These conditions seem to involve different 'directional adverbials' in formal terms. Apparently the 'towards' vs 'after' distinction is not of primary importance, while 'having as a goal the position of some other person' is, and this is precisely what '*akoļuθo*' and '*erxome*' (come) have in common (compared to the remaining verbs of the set). This gives an idea of what the prototypical understanding of both verbs may involve, and bears

directly on the important issue of deixis, to be discussed immediately below.

Within cluster E the sub-cluster mentioned in the preceding paragraph includes an antonymous deictic pair '*piyeno*' (go) and '*erxome*' (come) which any analysis would consider together. The number of co-occurrences of these verbs is significantly high: 39. Notice, however, that '*fevyo*' (leave) also has 38 co-occurrences with '*erxome*' and 37 with '*piyeno*'. We actually get a triplet, rather than an isolated antonymous pair, as is the case with '*beno-vyeno*' (49 co-occurrences) for instance. The triplet is explainable in terms of 'traditional' properties. All three verbs are less marked (involve fewer specifications) than the remaining CL non-causatives of the set. What is not explainable in such terms is the high number of co-occurrences of '*erxome*' with '*akoluθo*'. In terms of the categories of 'place and person deixis', '*piyeno*' and '*erxome*' would appear to be equally deictic. It seems, however, closer to the facts to accept that '*erxome*' (come) involves typically 'motion to the location of a person' unlike '*piyeno*', to which the most general understanding of deixis involving 'place or person' is more appropriate. Individual listings show that when '*piyeno*' and '*erxome*' are listed separately, the latter verb is grouped with '*akoluθo*' (follow) which also involves 'movement towards a person'. On the other hand, '*piyeno*' (go) is, in such cases, listed together with '*fevyo*' (leave) and '*perpatao*' (walk). The most immediate interpretation of these data is that '*piyeno*' itself is sometimes used to imply '*fevyo*' (I am leaving). Finally the co-occurrences with '*perpatao*' (walk) point to the direction of the prototypical understanding of this last verb, which although specified for 'manner' (instrument, medium, etc.), describes the most characteristic way of CL or 'distance covering' for humans (closely followed by '*trexo*' (run)). In this sense it is closer to the 'general motion CL non-causatives' than other 'manner' specifying verbs. The distinction between 'general' and 'manner' specifying verbs is not in the least indisputable and should be considered carefully in connection with the SST results.

Some of the verbs discussed in 4.2.4 under 'manner' are singled out by Miller and Johnson-Laird (1976:550) as describing 'main global locomotory motions'. Within the set given to subjects such MGMVs are: 'perpatao' (walk), 'trexo' (run), 'sernome' (creep, crawl), 'skarfalono' (climb). As can be easily attested in the HCS these verbs do not form a cluster, despite the fact that they share a number of properties. They are all agentive, non-causative, 'manner' specifying, CL and 'distance covering' in particular, imply 'body involvement', and 'contact with ground of extremities of limbs'. Most traditional analyses consider them together, including Miller and Johnson-Laird (ibid.) and 4.2.4 of the present study. A look at individual pairings of verbs in the matrix reveals that the closest pair is 'perpatao' (walk) - 'trexo' (run), with 35 co-occurrences. This is explainable both in traditional and prototypical terms. The next best pairing involves 'piḏao' (jump) which appears 24 times with 'trexo' (run) and is not included in the 'main global locomotory motions' set. In 4.2.4 'piḏao' (jump) was considered as typically 'non-distance covering' and as involving some element of 'energy' or 'force', a common property with 'trexo' (run). It also has 20 co-occurrences with 'perpatao' (walk), however, an indication that the majority of the properties mentioned as characterizing the 'main global locomotory motions' set are also applicable in this case and are not ignored. What does not show immediately in the HCS but can be checked in the matrix is that 'piḏao' has 18 co-occurrences with 'petao' (fly) and 15 with 'skarfalono' (climb). The conclusion that 'upward' motion is also part of its specification is fairly inevitable, as is also the recognition of the fact that in the case of 'piḏao' (jump) properties other than 'verticality' are felt as more salient. Nevertheless, the main problem with the set in question does not lie in the exclusion of 'piḏao' but in the inclusion of 'skarfalono' (climb) and 'sernome' (creep, crawl). As already noted both verbs are quite removed from the ones just discussed, as 'skarfalono' is clustered together with 'vertical' motion non-causatives (cluster B) and while 'sernome' is part of cluster C, which includes non-causatives marked for absence of intentionality ('undesirable' motion), 'contact of major part of body with environment', and perhaps also some 'downward' element, which is suggested in 4.4 to be closely linked with absence of agentivity.

The question therefore arises to what extent the 'general' vs 'manner' distinction advocated in 4.2 is at all plausible. The SST results show that although it is not ignored, it is not very salient either, compared to other properties, nor is it independent of properties such as 'medium', 'instrument' and typical CL for humans. If the distinction were not recognized by subjects, '*perpatao*' (walk), '*trexo*' (run), '*piḏao*' (jump) would not have constituted a clear sub-cluster of E (CL non-causatives, 'indeterminate' direction). On the other hand, the co-occurrences of '*piveno*' (go) (a most 'general' motion verb) with those verbs of the set which specify 'manner' show, once again, the inadequacy of general classifications and the importance of prototypical images. Compare these co-occurrences:

	<i>perpatao</i> (walk)	-> 21
	<i>trexo</i> (run)	-> 11
	<i>piḏao</i> (jump)	-> 4
<i>piveno</i>	<i>skarfalono</i> (climb)	-> 4
(go)	<i>sernome</i> (creep,crawl)	-> 4
	<i>petao</i> (fly, throw)	-> 2
	<i>kilao</i> (roll)	-> 2

These significant differences can be explained only if one considers that the prototypical image of '*piveno*' (go) involves something like 'intentional distance covering on foot'. The last and the first part of this rough specification ('intentional' and 'on foot') are interdependent. This specification is also applicable to '*perpatao*' (walk), involving the most typical way of CL for humans, as well as to '*trexo*' (run) which is, however, less characteristic/typical in this respect. None of the remaining 'manner' specifying verbs of the set involves typical CL or distance covering for humans. This can explain the remarkably low scores they have with '*piveno*' (go). Additional data as to how these verbs are clustered and for what reasons have been already discussed and need not be repeated.

Within cluster D, which includes CL causatives, two sub-clusters are identified in the HCS. The one which consists of items 17-14, i.e.

'*ipsono*' (raise), '*anevazo*' (take up), '*kremao*' (hang), involves a combination of 'upward' motion and presence of 'accompaniment'. Items 16-23, i.e. '*rixno*' (throw), '*tinazo*' (shake up), and '*gremizo*' (pull down) are more closely linked to the causative understanding of '*petao*' (throw), with which '*rixno*' (throw) and '*tinazo*' (shake up) have 22 and 21 co-occurrences respectively. These involve 'absence of accompaniment' and 'impetus', which are not independent properties since in the case of CL causatives 'impetus' implies 'absence of accompaniment'. It does not therefore make sense to talk about relative salience of a single property in this case either.

The tendency of subjects to form pairs is quite noticeable in the HCS. Some of these pairs were already discussed. Of the remaining ones, '*beno*' (enter) and '*vveno*' (exit) have 49 co-occurrences (i.e. only one subject separated them), while 18 times they are listed in isolation. This may imply that some property involving 'two/three dimensional area' is fairly salient, provided no other property(ies) of those already mentioned as very salient is also involved. This must be noted, in order to account for the fact that '*vuljazo*' (sink), which also involves 'motion into a three-dimensional area', has only 2 co-occurrences with '*beno*'.

The two pairs of near-synonyms of this set, i.e. '*anevazo*' (take up) - '*ipsono*' (raise) and '*periferome*' - '*triyirizo*' (roam around) were included in order to check whether the '-ome' mediopassive ending would play a role in subjects' classifications and whether '*anevazo*' would have more listings with its non-causative counterpart '*aneveno*' (ascend) than '*ipsono*' (raise) would. The results show that morphological cues ('-ome' ending) played no role in subjects' judgments and that subtle differences of meaning ('*ipsono*' - '*anevazo*') do not affect the overall classification.

The fact that '*ferno*' (bring) has only 2 co-occurrences with '*erxome*' (come) could have been interpreted as implying that their common deictic component is infinitely less salient than the causative one (which the two verbs do not share). It seems, however, more plausible to assume that if the property of causativity (or its

absence) is a shared one, subjects tend to form pairs of antonyms or near-antonyms and do not need to bother about which particular properties are shared unless a very salient one is involved. This explains why 'ferno' (bring) and 'stelno' (send) are such a 'strong' pair (48 co-occurrences, 30 of which are unaccompanied by any other item), although the exact antonym of 'ferno' (bring) is actually 'piyeno<sub>2</sub>' (take to).<sup>3</sup> It also explains why 'beno - vveno' is an equally strong pair, while 'aneveno - kateveno' is less strong: the last case is the only one involving the extremely salient properties of 'upward' and 'downward' motion; besides, the possibility existed of listing either member of the antonymous pair with other verbs of the set sharing this property while not being members of other antonymous (or synonymous) pairs.

To sum up, it seems unwarranted to draw any conclusions bearing on the overall organization of a semantic domain on the basis of the data from any subset. The same applies to decisions on the exact nature of properties or dimensions which seem to operate within the subset. Specific strategies of subjects performing SSTs, such as the tendency to form pairs of (near) synonyms and (near) antonyms, play a decisive role, as does also the actual choice of variables (items). The possibilities of combinations open to subjects have to be taken seriously into account. A further important factor emerges, namely that a number of properties are not independent. In view of all these, interpreting SST results in terms of number of shared attributes/properties (e.g. Long 1975) or relative salience between isolated properties (e.g. Miller 1972) does not seem well founded.

Less strong conclusions can, however, be drawn. The most important among these seem to be the role of the relative salience of certain combinations of properties in semantic similarity judgments and the psychological validity of specific, prototypical understandings of categories as opposed to most general ones.

## 5.2 Prototypicality tests with Modern Greek motion verbs

Taxonomic relations between terms and the problems raised in connection with verbs, and MGMVs in particular, are discussed at length in 4.1, which contains also an analysis of such relations in the field under consideration. Section 4.1.2 concentrates on how to determine which items are 'basic level' in this field and elaborates on the notions of 'linguistic markedness' and 'relative class inclusion'. The present section focuses on the important principle elaborated by Rosch and her colleagues (e.g. Rosch and Mervis 1975, Mervis and Rosch 1981) that subordinate categories are not equidistant from the inclusive category name, i.e. that all members (of a category) are not equally representative of their category. Evidence in favour of the non-equivalence of category members was first offered by Berlin and Kay (1969) where an illuminating distinction was drawn between focal and non-focal colours. The former constitute points in the colour space which speakers of quite different languages judge as most representative (i.e. as the best examples) of the 11 basic colour categories.

Rosch and her colleagues have shown that gradients of representatives are also found in many semantic categories and in particular both in those constituting biological taxonomies (animals, plants) and in those belonging to non-biological ones, such as artefacts (furniture, musical instruments). Rosch and Mervis (1975) demonstrate that category members differ in the extent to which they share attributes with other category members. This variable they call 'family resemblance', following Wittgenstein (1953). Examples which have most attributes in common with other items within the same category share few (if any) attributes with members of other (similar) categories. These examples have the highest family resemblance scores and are judged as the most representative or prototypical of their inclusive category.

Pulman (1983) investigates whether verb categories also show the prototype effect and whether, in case they do, the same principle (i.e. family resemblance) can be held responsible for the formation

of prototypes. His investigation is of immediate concern to the present study, as a number of the observations he makes are also applicable to the facts of MGMVs. Notice, for a start, that although Pulman was drawing material from all different verb areas of English, he ended up with only 8 hyponymic sets consisting of a hypothesized basic level and six hyponyms. His remark "it turned out to be quite difficult to find enough basic level verbs with a sufficient number of hyponyms" (ibid.:110), if applied to the present study of a single verb domain (MGMVs), would be something of an understatement in view of the difficulties pointed out in 4.1. An additional problem, which has emerged at various points throughout this study, is the particular sociolinguistic complications faced by anyone conducting lexical research in MG.

In view of the aforementioned difficulties, the pilot test I carried out in order to see whether the prototype effect obtained for MGMVs contained 11 groups of verbs, some of which were extremely unfamiliar and/or belonged to different registers, constituted dubious cases, were cross-classified or were marked S1 or S3. The test asked subjects for subjective ratings of typicality/representativeness along a 7-point scale, following Rosch and Pulman. Twelve fourth year undergraduates of the English Department of Athens University served as subjects for the pilot test. They were given 11 sets of MGMVs, each consisting of a basic level term (in my view) and 7-10 hypothesized hyponyms, and were asked to decide which member of each category was more characteristic or typical of that category.

Subjects were instructed to extend the 'standard' (in Rosch and Pulman's tests) 7-point scale to 10 points for those sets that had more than 7 hyponyms, if they felt it was necessary. They were also instructed to leave out items about which they had doubts (i.e. because they either did not know their meaning or did not know how to classify them). The idea was that if certain items were consistently left out they would not be included in the final test. Apart from that the instructions were in essence the same as those given by Rosch and Pulman but somewhat more detailed.<sup>4</sup> The instructions are included below (translated into English) and followed by the written example of what subjects were supposed to do.

"You have 11 groups of verbs which signify 'movement'. Each group consists of one verb which is considered the basic one of the group and 7 to 10 others which are considered hyponyms of the former, i.e. are classified under it (and consequently include it as part of their meaning).

The first group includes 8 members of the category 'perpatao' (walk), the second one 6 members of the category 'viθizome' (sink), and so on. You have to decide for each member of the category 'perpatao', for instance, how characteristic (representative) of that category it is. The most representative verb of each category is to be put in box number 1, the least representative in number 7. Only the literal meaning of these verbs is taken into consideration, not their figurative uses (e.g. 'metafero' (transfer, transport) is to be understood as implying 'antikimena' (objects) and not 'ta ekloyika mu ðikeomata' (my voting rights)).

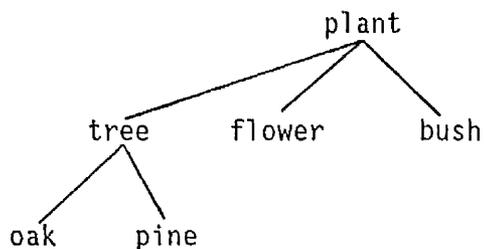
Notice the following points:

1. Use, as far as possible, all the boxes, that is try to classify the verbs using the whole scale.
2. A box may, nevertheless, include more than one verb if you consider that these verbs are equally representative of the category.
3. For those groups of verbs that have more than 7 members you may extend the scale up to 10, if you wish.
4. If you are in doubt about the 'marking' of a member of a category or about its meaning, leave it out."

Example: *skotono* (kill)

- |                                |                                       |  |    |
|--------------------------------|---------------------------------------|--|----|
| 1. <i>ðolofono</i><br>murder   | 2. <i>ektelo</i><br>execute           | 3. <i>sfazo</i><br>massacre, slaughter | 4. |
| 5. <i>θisiazo</i><br>sacrifice | 6. <i>aftoktono</i><br>commit suicide | 7.                                     |    |

Two examples were also provided and shown on the board, one of inclusion (hyponymic) relationships involving the MG terms for:



and one of prototypicality measurements with the MG terms for:

furniture

1. chair, table    2. \_\_\_\_\_    3. chest    4. \_\_\_\_\_  
 5. \_\_\_\_\_    6. hat-stand

The groups of verbs which followed the instructions were random as was also the order of the members within each category. Subjects were told that the experiment was a linguistic and not a psychological one and that the time they might need to make their judgments was of no consequence. In view of the difficulty reported by the subjects who had carried out the 'semantic similarity' task with regard to the instruction that they should try and take into account all possible uses of the verbs (provided they stick to 'physical motion'), that particular instruction was omitted.

After they had completed their answers, subjects were encouraged to discuss any problems they had had with the test. On the basis of the discussion which followed, it became quite obvious that a number of hyponyms would have to be omitted in the final test, as they were practically unknown to that particular and rather select group of subjects. This meant also that some whole sets of verbs were left with too few hyponyms and had to be excluded. Besides it became clear that even sophisticated subjects were unable to spell out specific attributes for most verbs, although they could confidently agree or disagree with proposed definitions and point out differences in the use of related hyponyms.

The most important points that resulted from the discussion were: (a) the notions 'representative' and 'characteristic' which were entirely new to the subjects in this connection (prototypicality) did not present a problem to anybody; and (b) the term 'distance' was used throughout the discussion, confirming Pulman's (ibid.) and my intuitions that in making prototypicality judgments, subjects are actually estimating the degree of semantic similarity between an inclusive category and each hyponym. This issue will be taken up again in a discussion of the final test results. At this point all that needs to be stated is that the actual results of the pilot test were quite encouraging concerning agreement on the best and the worst examples at least.

Therefore, the final test was simply a modification of the pilot one along the following lines:

- (1) The groups/sets of verbs were reduced to 8, since those sets which presented unsurmountable problems were omitted, except for one which appears under C in the final test. That set was included in order to check whether it would yield equally bad results with a large number of subjects.
- (2) Items which proved to be 'unknown' to the pilot test subjects were omitted. Verbs marked S1 and S3 were avoided (except for one item 'axθoforo' (carry baggage) in category D) but verbs belonging to different registers were included. An example of a possible object was included for the verb 'petjeme' (go for a short time) of set E, so that the specific sense meant was made clear.
- (3) The instructions contained only points 1 and 2 of those which subjects' attention was drawn for the pilot test. The first one was phrased more simply but the specification "the whole scale" was underlined, as the pilot test showed a remarkable reluctance of subjects to use the whole scale if less than 7 hyponyms were included. For the same reason an additional item: 'eksoʎoθrevo' (exterminate) appeared in box 4 of the example provided, while

boxes 6 and 7 were filled with the items previously appearing in boxes 5 and 6 respectively.

The final test was carried out by 61 subjects in two separate groups. They were all native speakers of Greek. One group consisted of 28 second year undergraduates of the French Department and the other one of 33 first year undergraduates of the English Department of Athens University.

A couple of responses were incomplete but were not discounted. Despite my efforts, the full 7-point scale was not used when only 5 hyponyms were provided. Following Pulman (*ibid.*) a chi-square test was used to measure goodness of fit between observed and expected distribution of responses. The actual result is provided for each verb. Notice that for 6 degrees of freedom (df 6) and .05 level of significance, the significant value of the  $x^2$  test is 12.59. The vast majority of the verbs tested were neither evenly nor randomly distributed. A large number of the results obtained showed high inter-subject agreement on what were the best and the worst examples of each category.

In the presentation of results which follows immediately, rankings and mean ratings are given, the latter appearing under each subordinate item. The results of the  $x^2$  test appear in parentheses so that an accurate picture is provided of the extent to which subjects agreed on the ranking of each particular item.<sup>5</sup>

A. perpatao (walk)

ranking	:	1	2
		<i>vimatizo</i> (pace)	<i>pezoporo</i> (walk a long distance)
mean rating:		1.606	1.623
$x^2$	:	(122.23)	(121.3)

3	4
<i>sulatsaro</i> (saunter)	<i>δraskelizo</i> (stride)
2.967	4.164
(155.7)	(96.94)

5	6
<i>triklizo</i> (stagger)	<i>parapatao</i> (stumble)
5.721	6
(72.84)	(74.64)

7
<i>busulizo</i> (crawl (as of a baby))
6.197
(114.18)

Expectedly '*perpatao*' (walk) is the category which yielded the best results, (in the sense of inter-subject agreement) possibly because owing to the prototypicality of the activity, it is easy to find a large number of hyponyms well-known to all subjects and sufficiently 'removed' from one another.

The items holding positions 1, 2 and 3 inherit most of the attributes considered typical of the category name (in 4.2.4), including 'regularity' and 'continuity' of motion. The fact that '*vimatizo*' (pace) does not typically involve 'reaching a destination' (e.g. 'pacing up and down' is its most typical use) is evidently not considered important enough to remove it from the first position. Complete absence of goal, however, applicable to '*sulatsaro*' (saunter), which is an instance of 'random walk', is probably responsible for its being fairly far removed from the 2nd best ('*pezoporo*').

Differences in register do not seem to play an important role: '*pezoporo*' (walk a long distance) is high register and '*sulatsaro*' (saunter) low register. Linguistic unmarkedness is not the most

important factor either: both '*triklizo*' (stagger) and '*parapatao*' (stumble) are linguistically unmarked and quite familiar items (see 4.1), yet they are judged as poor examples of the category name. What is more important, they are both more frequent than '*pezoporo*' (walk a long distance) at least.

It is therefore fairly clear that the relative salience of specific properties plays the most decisive role in this category. The 4th position is occupied by '*ōraske<sup>l</sup>izo*' (stride) which is typically an 'event' verb (no continuity), the 5th and 6th positions have verbs describing 'irregular' and 'defective' kinds of walking, while the least typical example is hardly an instance of '*perpatao*' (walk). The simplest way of showing these differences in degree of prototypicality in this case is through 'substitutability' possibilities, in a common environment:

(1) <i>den perpatai kanonika</i>	<i>*vimatizi,</i>	<i>*pezopori</i>
s/he does not walk properly	s/he paces	walks a long distance

*??sulatsari*  
saunters

*triklizi, parapatai*  
staggers

(2) <i>den perpatai akomi</i>	<i>busulizi</i>
s/he does not (cannot) walk yet	s/he is crawling (as of a baby)

B. *viθizome* (sink)

1	2
<i>vuljazo</i> (sink)	<i>katapondizome</i> (sink to the bottom,
1.229	3.361 become inundated)
(225.4)	(28.9)

3	4
<i>kataðiome</i> (dive)	<i>vutao</i> (dive)
3.934	4.623
(4.30)	(19.24)
5	6
<i>navayo</i> (founder, 4.705 become ship- (24.76) wrecked)	<i>fudaro</i> (sink to the bottom) 4.951 (17.86)

The only reason for having '*viθizome*' rather than '*vuljazo*' as the inclusive category here is that the former can be marginally used for intentional as well as unintentional submersion into water. Quite expectedly '*vuljazo*' (sink) is almost unanimously judged as the verb nearest to the inclusive category name.

One item '*kataðiome*' (dive) fails to reach significance and is therefore discarded. There are also two items, those in positions 4 and 6 barely reach significance. Their ratings are quite unexpected. The former one, '*vutao*' (dive) implies intentional and momentary motion unlike the rest. It is a very familiar verb which is, however, only partially included in '*viθizome*' (sink). The latter one '*fudaro*' (sink to the bottom) is low register and rather unfamiliar, but it is otherwise a very good instance of '*viθizome*' (sink).

It seems reasonable to assume that the differences in 'manner' of motion are not very distinct, neither are the corresponding verbs very familiar. Subjects are therefore left to decide on the basis of presence or absence of 'intentionality' and 'familiarity' which emerges here as an important factor. Familiarity is not, however, the only decisive factor here either. Notice that '*katapondizome*' (sink to the bottom, become inundated) is not very familiar, yet it occupies the 2nd position. Apparently its sense which does not imply motion of the object (i.e. 'become inundated') is ignored here, at least by some subjects; once an item is given as a hyponym of an inclusive category, subjects tend to concentrate on that particular

use/sense it has which is directly associated with the given higher category name.

C. piðao (jump)

1	2	3
<i>saltaro</i> (leap)	<i>anapiðao</i> (jump up	<i>tinazome</i> (spring up/
2	3.164 (and down))	4.443 jerk)
(89.12)	(13.03)	(8.67)
4	5	
<i>petjeme</i> (jump up/jolt)	<i>iperpiðao</i> (jump over)	
4.590	4.705	
(15.10)	(22)	

As already noted, this set was included despite all evidence to the contrary on the basis of the pilot test results. Only 5 hyponyms are included in this 'final' version of C and one of them '*tinazome*' (spring up/jerk) fails to reach significance, while its near-synonym '*petjeme*' (jump up/jolt) does not display any high inter-subject agreement on how it should be classified, neither does '*anapiðao*' (jump up (and down)). As in the case of the previous set, very slight differences are involved, so it makes no sense to concentrate on salience of properties. Three cases are worth discussing, namely the items occupying positions 1, 2 and 5.

It is interesting to notice that the items sharing almost all important properties with the category name, namely '*saltaro*' (leap) and '*iperpiðao*' (jump over), occupy the first and the last positions respectively. The former item is normally understood as not implying repetition of the jumping event (i.e. a series of repeated jumps) and is used in cases like leaping over an obstacle, for instance. It is also low register, linguistically marked but quite familiar to the speakers of the age group to which the subjects belonged. The latter item implies clearly jumping over something, is high register and particularly infrequent and unfamiliar. The importance of familiarity and frequency in this case is obvious.

The item in position 2, 'anapiðao' (jump up (and down)) has two fairly distinct uses: one implying 'jump as a result of being startled' and another one implying 'jumping up and down'. The subjects who carried out the pilot test were mostly aware of the latter use. This explains why 'anapiðao' figures in the 2nd position rather than together with 'petjeme' (jump up) and 'tinazome' (spring up): it is mainly understood as implying a series of repeated jumps and not as an instance of CP (as it appears in List VII).

D. piyeno kati kapu (take something somewhere)<sup>6</sup>

1	2
<i>metafero</i> (transport, transfer)	<i>kuvalao</i> (carry)
1.197	2.300
(245.68)	(67.8)
3	4
<i>metakomizo</i> (move furniture)	<i>proskomizo</i> (take documents to an official)
4.322	4.590
(9.94)	(10.05)
5	6
<i>axθofo</i> (carry baggage)	<i>metavivazo</i> (transmit)
4.656	5.328
(17.2)	(29.8)

Only the two best and the worst examples of this category need to be discussed as the remaining ones do not show inter-subject agreement.

The first thing to notice is that the differences between subordinate categories do not involve types/'manner' of motion but 'type of object' caused to move, for which the superordinate category is not specified. Otherwise, 'accompaniment' is a shared attribute of all the terms of the set. 'Indirect causation' and therefore the possibility of appearing within predications which are low in agentivity is only applicable to the inclusive category ('piyeno')

and marginally to the term judged as most prototypical of it, but none of the others. Notice also, that 'axθofofo' (carry baggage) is linguistically marked, unfamiliar and infrequent, while 'metavivazo' (transmit) is scarcely replaceable by the category name, as the object 'caused to move' is typically abstract, e.g. 'a message', 'greetings'. In short, 'metavivazo' (transmit) involves least typical objects 'caused to move' and although familiar, it is certainly of restricted use compared to the verbs appearing in positions 1, 2 (and 3) and is also of high register.

The best example 'metafero' (transfer) is equally familiar with the second one 'kuvalao' (carry). They both imply that the object is fairly 'substantial' (it cannot be a letter, for instance), but the latter item implies also that the act is undesirable (e.g. the object is heavy or the act is executed unnecessarily). In this sense 'kuvalao' (carry) is slightly more linguistically marked than the item judged as most prototypical of this category.<sup>7</sup> A further difference between these two best examples is the fact that only the former one is typically understood as implying that the object must reach a destination, as does also the inclusive category name. The verb 'kuvalao' need not imply any such thing. Evidently there is no way of choosing between the two alternative possibilities, i.e. of telling whether linguistic markedness or salience of properties determines the relative distance of 'metafero' and 'kuvalao' from the inclusive category name. Similarly, in view of what has already been noted with respect to 'metavivazo' (transmit), more than one factor is involved in rendering it the least typical verb of this category.

E. piveno (go)

1	2
porevome (go a long distance	proxoro (advance)
1.344 on foot)	2.246
(213.7)	(84.99)

3	4
<i>petjeme</i> (p.x. sto periptero)	<i>taksiđevo</i> (travel)
3.377 (go for a short time, e.g. (77.86) to the kiosque)	4.2 (17.17)
5	6
<i>proelavno</i> (advance (milit.))	<i>parelavno</i> (march)
5.852 (60.62)	6.229 (97.88)

This is another set exhibiting remarkable inter-subject agreement, comparable to the '*perpatao*' (walk) verbs and probably for the same reasons. The inclusive category constitutes the most characteristic 'general' way of covering distance and it is easy to find hyponyms for it which are well-known to most subjects and sufficiently distinct/removed from one another.

Notice, first, that the verbs occupying positions 2 and 4 do not specify 'instrument' (on foot), like the category name and unlike the remaining items of the set. In view, however, of what has already been noted in the previous section (SST results), the inclusive category '*piyeno*' is probably mainly understood as involving 'going somewhere on foot'. It is possible that the same applies to '*proxoro*' (advance) and also to '*petjeme*' (go for a short time) owing to the specific environment (to the kiosque) supplied in the test for the latter. Therefore the only verb in the set which does not allow for such an understanding (instrument = feet) is '*taksiđevo*' (travel). This may be the reason why there is no great inter-subject agreement as to how this verb is to be classified.

Notice further that although both verbs judged as most prototypical of this category are familiar, the first one is certainly less frequent than the second one. Besides, although '*porevome*' (go a long distance on foot) may imply that some destination is going to be reached, such a specification is not a necessary one as it is for the inclusive category. It is even less necessary in the case of

'proxoro' (advance) which occupies the 2nd position. This means either that this property is not at all relevant, or that it is understood as a shared property of all three verbs in question. In any case, the fact that it is necessary in the case of 'petjeme' (go for a short time) is not sufficient to render it closer to the inclusive category than the two hyponyms already discussed.

The verbs judged as least typical of 'piyeno' (go) are expectedly 'proelavno' (advance (milit.)) which is evidently of restricted use and much less familiar than all the rest and 'parelavno' (march) commonly associated with 'walking in a parade', where the process (and not the destination) is important. This last example is also of restricted use (therefore infrequent) but certainly more familiar than 'proelavno' which is judged as a better instance of 'piyeno'.

In short, all three factors, i.e. frequency, familiarity and salience of properties are again shown to play a role in prototypicality judgments.

F. fevvo (leave)

1	2	3
<i>apoxoro</i> (withdraw)	<i>anaxoro</i> (depart)	<i>aposirome</i> (retire)
1.817	2	3.197
(90.66)	(82.23)	(54.18)
4	5	
<i>apomakrinome</i> (move away from)	<i>ksekubizome</i> (clear off)	
3.23	4.47	
(34.15)	(42.82)	
6	7	
<i>metanastevo</i> (emigrate)	<i>δrapetevo</i> (escape)	
5.787	6.607	
(78.55)	(172.11)	

This is the last set exhibiting 'spectacular' inter-subject agreement. The reasons for this need not be repeated. The results are easy to discuss, as a lot of information is supplied for the verbs of this set in 4.1.2.

All three items occupying the first three positions are high register. Although the distance between the two best examples is slight, it is worth noticing that it is the verb judged as less representative than 'apoxoro' (withdraw) which actually covers the same conceptual area as the inclusive category name. This is probably due to the fact that 'anaxoro' (depart) is less frequent than 'apoxoro' (withdraw), since 'fevyo' (leave) is commonly used instead.

Notice that both best examples imply that the act of going away is 'final', unlike the verbs occupying the 3rd and 4th positions. This 'non-complete disappearance' is particularly characteristic of 'apomakrinome' (move away from) and is probably responsible for its being judged so far removed from the inclusive category. Otherwise, 'apomakrinome' is probably the commonest (most frequent) item of this set of hyponyms and is certainly linguistically unmarked.

Notice that 'ksekubizome' (clear off) covers roughly the same semantic area with 'fevyo' (leave) and is quite familiar to the subjects. It is, however, evidently linguistically marked (strong negative connotation) and infrequent. It is apparently for these reasons that it occupies the 5th position.

Both 'metanastevo' (emigrate) and 'ōrapetevo' (escape) are familiar and linguistically unmarked. The fact that they do not describe 'simple' physical motion but involve also (prominent) social characteristics is the obvious explanation why they are judged as the least typical instances of 'fevyo' (leave). The risk of underspecification in case they are replaced by the category name is much greater than in the case of all the remaining verbs. Substitutability and semantic distance are obviously important in making prototypicality judgments. The salience of the specific

social connotations that go along with these two worst examples cannot be doubted.

G. aneveno (ascend)

1	2	3
<i>aniforizo</i> (go uphill)	<i>skarfalono</i> (climb)	<i>ipsonome</i> (rise)
1.967	2.328	2.688
(73.26)	(46.14)	(38.28)
4	5	
<i>sikonome</i> (rise, stand up)	<i>apovionome</i> (take off)	
4.377	4.672	
(21.05)	(49.35)	
6	7	
<i>ektoksevome</i> (be launched)	<i>eksfenōnizome</i> (be hurled)	
6.393	6.573	
(123.15)	(163.3)	

The problems of class inclusion arising in this set are discussed in 4.1.2. Notice that '*aniforizo*' (go uphill) and '*skarfalono*' (climb) are most easily replaceable by the inclusive category name, as they both imply 'contact with supporting surface' and can refer to human motion. It is not therefore surprising that they occupy the 1st and 2nd positions respectively. The slight distance between the latter verb and '*ipsonome*' (rise) in the 3rd position is rather unexpected; as already noted '*ipsonome*' is most commonly associated with the motion of 'smoke' or 'dust' (rather than humans) and does not usually imply 'contact with supporting surface' except in a fairly 'fixed' use, describing 'raising the flag'. In all these cases '*ipsonome*' (rise) is, however, replaceable by '*aneveno*' (the inclusive category name), which is hardly the case with any of the remaining items.

The great distance between the items occupying the 3rd and 4th positions, which receive similar translations, is hardly surprising.

As already noted in connection with the SST results, '*sikonome*' (rise, stand up) is typically associated with a human body assuming a standing position, and is, in this sense, quite dissimilar from '*ipsonome*' (rise).

It is perhaps noteworthy that '*apovionome*' (take off) can be easily (and is actually commonly) replaced by '*sikonome*' (rise), both used to refer to airplanes in such cases. It is possible that this association brings them fairly close to one another. It is of interest, moreover, that some subjects put both items in the same box, a fairly uncommon practice in this particular test.

The two worst examples are a great distance from the rest and show almost unanimous inter-subject agreement. A number of factors are involved in their case, such as presence of 'impetus', the fact that they are rarely used for human motion and especially that they are quite infrequent. Needless to say, they are hardly replaceable by the hypothesized inclusive term.

H. *pefto kato* (fall down)

1		2
<i>sorjazome</i> (collapse, come		<i>gremizome</i> (fall (in ruins))
1.459 crashing down)		2.885
(203.61)		(60.62)
3	4	5
<i>tubaro</i> (overturn)	<i>katrakilao</i> (roll down)	<i>kutruvalao</i> (roll
4.574	4.820	5.016 down)
(51.42)	(24.5)	(17.17)

The category name here was supplemented with the specification '*kato*' (down), to rule out readings of '*pefto*' (fall) which are unrelated to the items selected as its hyponyms for the present purposes. This was perhaps an unnecessary step, as '*pefto*' is probably typically understood as (accidentally) falling down, in the absence of any

specification to the contrary (e.g. falling intentionally on the enemy).

All the items of this set are prototypically at least understood as referring to unintentional downward motion. They are all fairly familiar. Three of them, '*tubaro*' (overturn), '*sorjazome*' (collapse) and '*kutruvalao*' (roll down) are low register.

The two best examples refer typically to CP rather than CL and are therefore more likely to appear in predications characterized in 2.4 as 'punctual occurrences'. The motion is also vertical and no 'turning' is involved. These properties '*sorjazome*' and '*gremizome*' share with the inclusive category name, by which they are most readily replaceable.

Notice that '*tubaro*' (overturn) involves 'turning' but rarely CL. In this sense it is half-way between the two best examples and the two worst ones, which imply some duration and are typically CL verbs. For this reason the two worst instances of '*pefto kato*' are in fact only replaceable by the hypothesized inclusive category when it is used in the environment '*pefto (kato) apo NP<sub>LOC</sub>*' (fall (down) from NP<sub>LOC</sub>).

The results of this last set are therefore explainable in a fairly straightforward way in terms of relative salience of attributes and the related notion of substitutability (as it is used here).

Three main points need to be discussed in relation to prototypicality test results. First of all, it is quite evident that subjects consistently judge some members of verb categories as more representative of the category than others. There can be little doubt that the prototype effect holds for the verbs tested. Similar evidence is also provided by Pulman (1983) for different English verb categories.

The second point was already mentioned in preceding sections; it concerns the principle(s) responsible for the formation of prototypes in verb domains. The principle of 'family resemblance', which Rosch and her colleagues have shown to be responsible for the formation of prototypes in the domains they have investigated, cannot even be checked in the case of the sets of verbs tested, at least following Rosch's method. Reasons for this are offered here in 1.3.2, 4.1.1 and 4.1.2. Pulman (1983:111-22) has shown experimentally that the 'family resemblance' principle is not a causal factor in the formation of prototypes of verbs, even if attributes are provided and analysed by the investigator (since they cannot be directly obtained by subjects).

Pulman makes a number of correct observations concerning the differences between noun and verb attributes, noun and verb taxonomies, and how prototypicality tests involving verbs are not amenable to the same sort of analysis as are items belonging to noun domains. Surprisingly enough what seems to me a most crucial point is, however, left out. Unlike the tests of Rosch and her colleagues, which usually involve basic level and superordinate categories, the verb taxonomies tested (both Pulman's and mine) involve basic level and subordinate categories.<sup>8</sup> At such a low level (subordinate), differences are not half as easily discernible as at higher levels. This explains why "the members of categories in question have few if any features in common other than those which they all inherit from the containing category itself" (Pulman *ibid.*:121).

The relative salience of combinations of attributes is shown in the SST results to play an important role in subjects' judgments when they are asked to 'count' semantic distance. Notice, however, that the items used for the SST reported in the previous section are probably 'basic level'. They are at least very common words in every day use, perfectly familiar, frequent and linguistically unmarked. Discussing in terms of shared properties is, in their case, fairly legitimate. On the other hand, in the prototypicality tests on the verbs mentioned here, in order to secure hyponymic relationships, subordinate items of the above 'basic level' categories are involved. This implies that a number of these items are linguistically marked,

relatively unfamiliar, rather infrequent and, in some cases, only partially included in the hypothesized inclusive term. It would be at least unrealistic to expect such factors not to play a role in subjects judgments.

The above remarks lead to the final and most important point concerning the appreciation of the prototypicality test results, i.e. what alternatives to the 'family resemblance' principle may be responsible for the formation of prototypes in verb domains. Rosch and Mervis (1975:559) consider the possibility of 'frequency' playing a role and the perceptual, social or memorial salience of particular attributes or particular members of the categories. Pulman (1983:120-36) observes that in the absence of an independent account of salience, saying that prototypical categories are the most salient ones is tautologous. He also proves experimentally that the prototypicality judgments he obtained correlated with semantic similarity judgments.

There is little doubt that subjects actually count semantic distance of hyponyms from the inclusive term and perhaps between co-hyponyms as well, in view also of the remarks of subjects who carried out the pilot test reported here. Notice also that Rosch and Mervis (1975) observe that prototypicality ratings predict the extent to which a member can be substituted for the category name in a sentence. In short, semantic similarity is, in the case of hyponymic relations, almost directly interpretable in terms of relative substitutability. There is a lot of evidence for this in the tests reported here, both concerning categories which yield very reliable results, i.e. great inter-subject agreement on the position of 'genuine hyponyms' which are sufficiently removed from one another and from the superordinate - (e.g. category A), as well as categories yielding less reliable results (e.g. categories G and H). The latter categories involve 'dubious cases' which are called here instances of 'partial inclusion' and offer poor substitutability possibilities.<sup>9</sup>

Notice, further, that within a taxonomy one does not need to spell out all the properties shared, but simply to identify points of

departure (dissimilarity from the category name). In the case of related low-level categories (subordinates), such a task is certainly more feasible than counting number of attributes. It is also more realistic and does not presuppose that each individual attribute is recognized as such, i.e. it is equally compatible with a 'holistic' as well as with a 'componential' understanding of categories. This is fairly easily done in the case of sets including items all of which are almost equally linguistically unmarked and familiar. Take as an example category A, i.e. 'perpatao' (walk) and its hyponyms. 'Perceptual salience' of attributes and categories can be readily interpreted in terms of semantic similarity and substitutability in this case. If some act of 'walking' is somehow 'defective', we expect it to be judged as an atypical act of 'walking' and this is clearly the case with 'triklizo' (stagger) and 'parapatao' (stumble).

If, however, semantic similarity and notions related to it were the only factors responsible for the formation of prototypes in the case of verbs, a number of ratings would have been different, e.g.:

- (a) 'fudaro' (sink to the bottom) would never be judged the worst instance of 'viθizome' (sink) in category B.
- (b) 'iperpiðao' (jump over) would never appear as the worst example of 'piðao' (jump) in category C.
- (c) 'axθoforo' (carry baggage) could receive a similar rating to 'kuvalao' (carry), i.e. appear in the 2nd rather than the penultimate position within set D ('piveno<sub>2</sub>' and its hyponyms).
- (d) 'proelavno' (advance (milit.)) would be much closer to 'proxoro' (advance) in category E (including 'piveno<sub>1</sub>' (go) and its hyponyms).
- (e) 'ksekubizome' (clear off) would not have taken the 5th position in category F, i.e. 'fevyo' (leave), as it

certainly has fewer 'extras' by comparison with the inclusive category than the items taking up the 1st, 2nd and 3rd positions.

In short, other factors are also involved, the most obvious of which have already been mentioned, namely familiarity, frequency and linguistic markedness, which are not completely distinct from one another, but do not amount to the same thing either, as I have tried to demonstrate in the presentation of the test results.

Notice first, that high or low register items may, however, be unfamiliar, infrequent and/or linguistically marked. This situation is less likely to arise in the case of items which do not belong to a marked register, for the obvious reason that sociolinguistically marked words are usually of more restricted use, i.e. less frequent. Nevertheless, frequency and familiarity do not coincide entirely either. Consider, for instance, the best examples of category E, namely '*porevome*' (go a long distance on foot) and '*proxoro*' (advance). They are equally well-known to speakers, i.e. quite familiar, but the first one is certainly much less frequent than the second. Within the same category, the worst examples, '*parelavno*' (march) and '*proelavno*' (advance (milit.)) are probably equally infrequent, but the former one is certainly much better known (more familiar) than the latter.

Familiarity and frequency, understood in the suggested way, are shown to play a role in prototypicality judgments. They are also distinct to some extent from linguistic markedness, which also plays a role in such judgments. Consider the verb '*ksekubizome*' (clear off), which is certainly familiar to the subjects and fairly frequent but linguistically marked. It is suggested in the discussion of category F that this factor (linguistic markedness) is responsible for the fact that the item in question is not judged a prototypical instance of '*fevyo*' (leave) with which it covers the same conceptual area.

Notice, finally, that if only familiarity was the decisive factor for such judgments, a number of ratings would have been different, e.g.:

- (a) *'saltaro'* (jump, leap) would never be judged the best instance of *'piðao'* (jump).
- (b) *'parapatao'* (stumble) would never be judged almost the worst instance of *'perpatao'* (walk).
- (c) *'katapondizome'* (sink to the bottom) would not be judged the 2nd best example of *'viθizome'* (sink).
- (d) *'taksiðevo'* (travel) would be judged closer to the category name (*'piveno<sub>1</sub>'* (go)) than *'porevome'* (go a long way on foot). The exact opposite is actually the case.
- (e) *'ðrapetevo'* (escape) and even *'metanastevo'* (emigrate) within the Greek social context are more familiar than *'anaxoro'* (depart) and *'apoxoro'* (withdraw) and would not be judged the least typical of the inclusive category of which the latter pair of verbs are judged as the best examples.

The picture which emerges concerning the interplay of the factors discussed and exemplified above has the following characteristics:

Hyponyms are ranged along different dimensions and each category has characteristics special to it. To qualify as a prototypical instance of a category, a member must be easily replaceable by the inclusive category name, and convey a similar picture to the one conveyed by the inclusive category (i.e. not be 'defective' in any way). This may be also explained in terms of attributes; prototypical members differ from the inclusive category at few and relatively unimportant points. In addition to this, prototypical members are normally fairly familiar, frequent and linguistically unmarked. The latter set of properties seems to play a less decisive role than semantic distance represented in terms of substitutability and relative salience of properties.

## Notes on Chapter 5

1. I am referring mainly to Fillenbaum and Rapoport (1971), Miller (1969, 1971, 1972), Long (1975), Rosch and Mervis (1975), Rosch et al. (1976), Pulman 1983).
2. This does not explain why 'δiasxizo' (traverse) is also linked to the 'random walk' verbs. It must be appreciated, though, that while forming clusters subjects often group two items together (e.g. 'pernao' and 'δiasxizo') as most closely related in meaning and then add other items to the 'nucleus' of the cluster, which may be linked with only one of the two first members. In short, they are aware of certain attributes as connected with certain items and may then over-extend their applicability to cover a whole set, although the attribute(s) in question may not be present in the whole set. This may also be the case with cluster C and the inclusion of 'sernome' (creep, crawl), already discussed. There is some evidence that this procedure was followed, from those listings of items which were written down on paper (by the subject who had formed the corresponding clusters and decided to 'ease' my task). Some obvious pairs come first, and these are followed by less clearly related items.
3. In view of the fact that 'piyeno<sub>2</sub>' (take to) and 'ferno' (bring) co-exist also in a compound word 'piyenoferno' (take and bring), one could expect some listings of 'ferno' with 'piyeno'. This is never the case, because cross-classification is not allowed and 'piyeno' is always interpreted as 'go', as already noted. Notice also that 'ferno' (bring) differs from 'stelno' (send) not only in terms of presense vs absence of 'accompaniment' but also in the sense that only the former implies that the object caused to move reaches its destination. The latter verb is analysed in 3.2 as implying only that the object is caused to 'start moving away from the causer'. Despite these differences, which are also present in the equivalent English verbs, 'send' is often used

parallel to 'take' as the causative counterpart of 'go' and their difference is reflected in calling 'send' an instance of 'ballistic' and 'bring' an instance of 'controlled' causation (e.g. Clark 1974:322).

4. Rosch's instructions are usually of the form: "Rate on a 7-point scale the extent to which instances of common superordinate categories represent your 'idea' or 'image' of the meaning of the category name". The equivalent MG paraphrase seemed to me extremely elliptic to be used with Greek students, who are accustomed to more explicit instructions.
5. Since 'expected' here is 'random' (testing the null hypothesis), the more removed the 'observed' result is from the 'expected', the stronger the assumption that the distribution is not random. In short, great inter-subject agreement is represented by a number (much) higher than 12.59. Anything lower than 12.59 implies not reaching significance.
6. The inclusive term here is '*piyeno*<sub>2</sub>' understood as a causative and marked as such in the test-booklets ('take something somewhere'), as the 'semantic similarity' test showed that although extremely common this understanding is secondary to the non-causative '*piyeno*<sub>1</sub>' (go).
7. The difference in linguistic markedness is slight, because except for the 'affective overtone' of 'undesirability', the verb is otherwise extremely common, familiar and of every-day use.
8. A large number of Rosch's tests on prototypicality are reported in Rosch and Mervis (1975:573-605). The types examined involve only superordinate categories (furniture, vehicle, fruit, weapon, vegetable, clothing) and 'basic level' items which are hyponyms of the categories just mentioned. All the experiments reported ask subjects for listings of attributes of such categories, the 'lowest' level ones being: car, truck, airplane, chair, table, i.e. basic level, common concrete nouns.

In Rosch et al. (1976:382-439) where the investigation concerns identifying the 'basic level of abstraction', and not prototypicality, object names are given (as variables) belonging to all three levels of abstraction (i.e. including also subordinates). Notice, however, that only two subordinates are provided for each hypothesized basic level category, e.g. 'floor lamp' and 'dress lamp' for 'lamp', 'city bus', 'cross country bus' for 'bus'.

9. Pulman (1983:135) claims that category membership (and class inclusion) is an all or nothing matter and provides examples in support of this claim. Notice, however, that Pulman focuses on 8 categories drawn from the whole verbal vocabulary of English and comes up with sets including only genuine hyponyms. 'Relative class inclusion' is discussed here, because 'semi-hyponyms' had to be included if a sufficient number of sets was to be tested. It seems to be the case that 'bad' examples of hyponymic sets are almost equally informative with 'good' ones. A unified explanation can be based on both kinds of sets.

## CONCLUSIONS

Motion verbs have been extensively analysed within the framework of traditional semantic theories such as semantic field theory and componential analysis. They constitute a well-established semantic field, highly structured and exhibiting a number of properties also relevant to other verb domains. MG verbs of motion, which have never previously been investigated, exhibit certain idiosyncrasies, owing to the aspectual system of Modern Greek and to sociolinguistic factors. Nevertheless, they reflect on the whole a semantic structure similar to that of most Indo-European languages.

Prototype theory was adopted as the most suitable method of investigation of this domain, because it rests on some basic assumptions on word meaning which are intuitively more convincing than those of traditional semantic theories. The most important of these assumptions is that word meaning is not a matter of necessary and sufficient conditions but a graded phenomenon, and that therefore, semantic categories have blurry edges and allow for degrees of membership. The validity of such a working hypothesis needs to be demonstrated by being tested in as many different areas as possible, as well as by having its results compared against those of alternative methods of investigation.

In examining analyses of MVs carried out within the framework of componential analysis and semantic field theories, it became obvious that one of their most important shortcomings was the obligation which they imposed to construct symmetrical tables and/or neat formulae utilizing the smallest number of features. Such economical and/or contrast based solutions were shown to result in definitions which involved properties not necessary for the specification of certain items and left out important information which was not amenable to the desired formalization. It was demonstrated that descriptions of MVs carried out within the framework of alternative lexical semantic theories were lacking in descriptive adequacy.

In the course of the analysis of MGMVs, a distinction was established between 'major classificatory properties' and 'minor properties' relevant to the specific field under investigation. The former type of properties was analysed first. The categorial frameworks which involve the notions of 'states-processes-events', 'causativity' and 'agentivity' were understood as relevant to a categorization of many different areas of the verbal vocabulary, related to grammatical categories such as 'aspect' and 'transitivity', applicable to a characterization of whole predications - and individual verbs through predications - and analysable into clusters of scalar properties. It was also shown that such properties are on the whole paradigmatically related to one another.

The 'states-processes-events' (S-P-E) distinction was examined in some detail in Chapter 2. It was demonstrated that S-P-E is best understood as a continuum, the focal points of which are identifiable on the basis of the interaction of a number of factors such as 'aspect', spatio-temporal specifications, inherent verb properties such as 'duration' and qualities of the 'theme' such as 'count' vs 'mass' and singular vs plural. On the basis of such considerations it has been possible to identify what constitutes central instances of a 'state' a 'process', a 'development' and a 'punctual occurrence' within the field under investigation and construct 'test-frames' in order to check the relative degree of 'processuality' and 'event-like nature' of a number of MGMVs. Similar distinctions are expected in other languages where the continuum is probably cut at points identifiable with the help of different, to some extent, linguistic means.

Causativity and agentivity were discussed in Chapter 3 where it was suggested that the relevant facts pertaining to them could be better approached if the two notions were kept distinct, to some extent, and the analysis of the former concentrated on the qualities of the caused event, while the investigation of the latter focused on the type of causing event. Both notions were also understood as involving continua.

The degree of causativity of transitive verbs was shown to depend mainly on the degree of deviation from the prototype of the patient. The

degree of agentivity of both transitive and intransitive verbs was shown to depend mainly on the degree of deviation from the prototype of the agent. It was demonstrated that factors posited by alternative approaches as crucial for the identification of causative verbs such as lexicalization of the resulting condition/position of the causee were not significant on the basis of the data examined. It was also shown that in the case of phonologically identical causative/non-causative pairs of MG Vs, the non-causative member is more basic.

The distinction between direct/indirect causatives was considered inadequate. Both within the manipulative and the non-manipulative type of causation different grades could be identified and the phenomenon was analysed in terms of a line leading from explicit causatives to prototypical instances of direct causation. The degree of affectedness of the object of MG transitive constructions was related to passivizability; the borders between MG '-ome' intransitives and passives were shown to be indeterminate; passives were treated along with intransitives, and it was shown that even 'genuinely' passive-form verbs can be more agentive than certain active-form intransitives.

The relation between the MVs under examination and their properties were discussed in Chapter 4. It was first demonstrated that verb taxonomies differ significantly from noun taxonomies of the type extensively analysed in ethnoscientific studies. In most cases, only two levels are safely identifiable, generic and specific; a number of taxons participate in competing taxonomies; many instances of substitutability are attributable to partial rather than proper class inclusion, so that within any specific verb domain, few clear cases of genuine hyponyms can be identified. Besides, since verbs involve on the whole more abstract and complex categorial frameworks than most types of nouns, it is virtually impossible to obtain listings of attributes directly from native speakers.

Owing to the above arguments, Rosch's method of identifying the basic level of abstraction is inapplicable in the case of verbs and an alternative method was tentatively proposed which involved taking into consideration factors such as relative substitutability (and class

inclusion), linguistic markedness, frequency and familiarity. The same factors, as well as the relative salience of attributes were considered pertinent to the formation of prototypes of verb categories. Within the area of MGMVs, 'minor' properties (category attributes) were identified and attention was drawn to the interdependence of 'manner', 'instrumentality' and 'medium', and the interrelations between 'manner' and 'directionality'. Besides, a number of other combinations of properties was shown to be non-arbitrary such as 'inward' with 'downward' or 'downward' with 'unintentional'.

In order to test the validity of some of the above observations against the intuitions of native speakers, as well as to check whether the principle of the non-equivalence of category members and the prototypicality effect obtained for verbs, a semantic similarity sorting task (SST) and a prototypicality test were carried out involving MG verbs of motion.

The SST results (reported in Chapter 5) provided some evidence in favour of the prototypical rather than the 'most general' understanding of verb categories, and the salience of specific combinations of properties (such as verticality and causativity), which is shown to constitute a more plausible explanation of semantic similarity judgments than number of shared attributes and hierarchy of individual and independent properties.

The prototypicality test results showed that the principle of non-equivalence of category members was valid for the verbs tested, despite the horrendous complications inherent in the material investigated (owing to the peculiar sociolinguistic situation of MG). It was demonstrated that the items consistently judged as the most prototypical instances of their inclusive category were the ones which could be most easily replaced by the category name and which conveyed the most similar picture to it, i.e. had the smallest semantic distance from their superordinate. Semantic similarity being already equated with relative salience of combinations of properties, the latter emerges as the most crucial factor in the formation of prototypes in the area under

investigation. Linguistic markedness, frequency and familiarity were also shown to play an important, though less decisive, role.

The relation between attribute clusters and the formation of categories remains a most interesting issue, in need of further research. Additional empirical corroboration for the existing hypotheses on lexical meaning needs to be accumulated and properly evaluated before such hypotheses can be reformulated and incorporated within a model of grammatical description which can claim psychological reality.

## APPENDIX

### LIST I: Modern Greek verbs of motion and position

<i>A agizi B</i>	A touches B
<i>A akoluθi B</i>	A follows B
<i>A akoluθjete</i>	A is followed
<i>A akubai<sub>1</sub> se C</i>	A leans on C
<i>A akubai<sub>2</sub> B se C</i>	A puts B on C
<i>A anakatevi B</i>	A stirs B
<i>A anakatevete</i>	A is stirred, churns
<i>A anapiθai</i>	A jumps up (and down), bounces
<i>A anapoθoyirizi<sub>1</sub></i>	A overturns, turns upside down
<i>A anapoθoyirizi<sub>2</sub> B</i>	A overturns B, turns B upside down
<i>A anapoθoyirizete</i>	A is turned upside down, is overturned
<i>A aneveni</i>	A ascends, goes up
<i>A anevazi B (se C)</i>	A takes B up, raises B (to/on C)
<i>A anevokateveni</i>	A goes up and down
<i>A anevokatevazi B</i>	A takes B up and down
<i>A apoyioni B</i>	A causes B to take off
<i>A apoyionete</i>	A takes off
<i>A apomakrini B</i>	A takes B away, removes B
<i>A apomakrinete</i>	A moves away, is taken away/removed
<i>A apoplei</i>	A sails off
<i>A armenizi</i>	A sails about
<i>A bazi B se C</i>	A puts B in C
<i>A beni se C</i>	A gets in/enters C
<i>A bizi B se C</i>	A sticks B in C
<i>A bizete se C</i>	A is stuck/sticks itself in C
<i>A busulizi</i>	A crawls (as of a baby)
<i>A θjaveni (C)</i>	A passes through/crosses (C)
<i>A θraskelizi (C)</i>	A strides (over C)
<i>A eksfenθonizi B</i>	A hurls/flings/slings B
<i>A eksfenθonizete</i>	A throws itself, is hurled
<i>A ektoksevi B</i>	A launches B

<i>A ektoksevete</i>	A is launched
<i>A epipei</i>	A floats
<i>A epistrefi</i>	A comes back, returns
<i>A erxete</i>	A comes
<i>A ferni B (se C)</i>	A brings B (to C)
<i>A fevvi</i>	A goes away, leaves, departs
<i>A ftani<sub>1</sub> (se C)</i>	A arrives at/reaches C
<i>A ftani<sub>2</sub> B se C</i>	A causes B to reach C
<i>A gremizi B</i>	A pulls B down (a precipice)
<i>A gremizete</i>	A falls down/is caused to fall down (a precipice), collapses
<i>A vlistrai<sub>1</sub></i>	A slides, slips
<i>A vlistrai<sub>2</sub> B</i>	A causes B to slide
<i>A virizi<sub>1</sub></i>	A goes around, turns
<i>A virizi<sub>2</sub> B</i>	A turns B
<i>A virizi<sub>3</sub> (epistrefi)</i>	A goes back (returns)
<i>A virizi<sub>4</sub> B se C</i>	A returns B to C
<i>A vonatizi<sub>1</sub></i>	A kneels
<i>A vonatizi<sub>2</sub> B</i>	A causes B to kneel
<i>A ipoxori</i>	A gives way, goes down under pressure, recedes, subsides
<i>A ipsoni B</i>	A raises B
<i>A ipsonete</i>	A rises, is raised
<i>A kaθete<sub>1</sub> (se C)/ine ka ismenos</i>	A is seated (on C)
<i>A kaθete<sub>2</sub> se B</i>	A sits/is sitting on B (assumes a sitting position)
<i>A kaθizi B</i>	A causes B to sit
<i>A kalpazi</i>	A gallops
<i>A kataθioki B</i>	A chases B
<i>A kataθiokete</i>	A is chased/pursued
<i>A kateveni</i>	A goes down, descends
<i>A katevazi B (se C)</i>	A takes B down (to/on C)
<i>A katrakilai</i>	A roll down
<i>A kiklofori<sub>1</sub></i>	A circulates, goes around
<i>A kiklofori<sub>2</sub> B</i>	A circulates B
<i>A kilai<sub>1</sub></i>	A rolls
<i>A kilai<sub>2</sub> B (se C)</i>	A causes B to roll (to C)
<i>A kiljete</i>	A wallows

<i>A kiniyai B</i>	A hunts/chases/runs after B
<i>A kolibai</i>	A swims
<i>A kremai B se C</i>	A hangs B on C
<i>A kremete (se C)/ine kremasmenos</i>	A is hanging/hangs/is hung (on C)
<i>A kremjete</i>	A hangs itself, is hung
<i>A ksanayirizi (se C)</i>	A goes/comes back/returns (to C)
<i>A ksana(e)rxete (se C)</i>	A comes back (to C)
<i>A ksaplioni<sub>1</sub> (se C)/ ine ksaplomenos</i>	A lies/is lying down (on C)
<i>A ksaplioni<sub>2</sub> (se C)</i>	A is lying down (on C) (assumes a lying position)
<i>A ksaplioni<sub>3</sub> B (se C)</i>	A causes B to lie down (on C)
<i>A ksekinai</i>	A starts off
<i>A kunjete (kunai<sub>1</sub>)</i>	A moves, stirs
<i>A kunai<sub>2</sub> B</i>	A causes B to move, shakes B
<i>A kutruvalai</i>	A rolls down
<i>A kuvalai B</i>	A carries B
<i>A kuvaljete</i>	A is carried
<i>A metaferi B</i>	A transports B
<i>A metaferete</i>	A is transported
<i>A metakomizi<sub>1</sub></i>	A moves house
<i>A metakomizi<sub>2</sub> B</i>	A moves B (furniture)
<i>A ine meteoros</i>	A is (suspended) in the air, is dangling
<i>A oḍiyi B</i>	A leads B
<i>A oḍiyite</i>	A is led
<i>A paramerizi<sub>1</sub></i>	A moves aside/over
<i>A paramerizi<sub>2</sub> B</i>	A puts B aside
<i>A paramerizete</i>	A is put aside
<i>A parapatai</i>	A stumbles
<i>A pefti (se C)</i>	A falls (on C)
<i>A periferi B</i>	A carries B about, causes B to go about
<i>A periferete</i>	A roams around, is carried about
<i>A perikiloni B</i>	A encircles B
<i>A perikiklonete</i>	A is encircled
<i>A periplanjete</i>	A wanders
<i>A pernai<sub>1</sub></i>	A passes

<i>A pernai<sub>2</sub> B</i>	A causes B to pass
<i>A perpatai</i>	A walks
<i>A petai<sub>1</sub></i>	A flies
<i>A petai<sub>2</sub> B</i>	A throws B
<i>A petjete<sub>1</sub>/petavete<sub>1</sub></i>	A is thrown (away)
<i>A petjete<sub>2</sub>/petavete<sub>2</sub> (se C)</i>	A dashes/goes for a short time (to C), jumps up
<i>A piyeni<sub>1</sub> se C</i>	A goes to C
<i>A piyeni<sub>2</sub> B se C</i>	A takes B to C
<i>A piyenoerxete</i>	A comes and goes
<i>A piyenoferni B</i>	A takes B s.wh. and brings it back
<i>A piḏai (B)</i>	A jumps (over B)
<i>A plei</i>	A sails
<i>A plisiazi<sub>1</sub> B</i>	A approaches B
<i>A plisiazi<sub>2</sub> B se C</i>	A causes B to approach C
<i>A porevete</i>	A goes/walks (a long distance)
<i>A prosyioni B</i>	A lands B
<i>A prosyionete</i>	A lands
<i>A prospernai<sub>2</sub> B</i>	A overtakes/passes by B
<i>A rixni B</i>	A throws B
<i>A rixnete (se C)</i>	A throws itself/is thrown to/falls (on C)
<i>A salevi</i>	A moves slightly/stirs
<i>A serjanizi</i>	A walks around
<i>A serni B</i>	A drags B
<i>A sernete</i>	A drags, is dragged, creeps, crawls
<i>A sii B</i>	A shakes B
<i>A siete</i>	A shakes
<i>A sikoni B</i>	A raises/lifts B
<i>A sikonete</i>	A rises, gets up, is lifted
<i>A sinoḏevi B</i>	A accompanies B
<i>A sinoḏevete</i>	A is accompanied
<i>A skarfaloni (B)</i>	A climbs (up B)
<i>A skivi</i>	A bends
<i>(A sproxni B)</i>	A pushes B
<i>A stazi</i>	A drips
<i>A steki/stekete</i>	A stands

<i>A stini B</i>	A causes B to stand
<i>A stinete</i>	A is caused to stand, assumes a standing position
<i>A strivi<sub>1</sub> (B)</i>	A turns (around B)
<i>A strivi<sub>2</sub> B</i>	A turns B
<i>A strifoyirizi<sub>1</sub></i>	A twists and turns
<i>A strifoyirizi<sub>2</sub> B</i>	A causes B to twist and turn
<i>A sulatsari</i>	A strolls, saunters
<i>A taksiðevi</i>	A travels
<i>A talandevi B</i>	A causes B to oscillate/swing
<i>A talandevete</i>	A oscillates, swings
<i>A tarakunai B</i>	A shakes/jolts B
<i>A tarakunjete</i>	A shakes, is shaken/jolted
<i>A tarazi B</i>	A shakes/agitates B
<i>A tarazete</i>	A shakes, is shaken/stirred
<i>A tinazi B</i>	A shakes B up, throws B abruptly
<i>A tinazete</i>	A shakes/jumps/springs up, jerks, is shaken up
<i>A tradazi B</i>	A shakes B
<i>A tradazete</i>	A shakes, is shaken/jolted
<i>(A travai B)</i>	A pulls B
<i>A tremi</i>	A trembles
<i>A trexi<sub>1</sub></i>	A runs
<i>A trexi<sub>2</sub> B</i>	A causes B to run
<i>A triyirnai<sub>1</sub>/triyirizi<sub>1</sub></i>	A roams around, goes here and there
<i>A triyirnai<sub>2</sub> B/triyirizi<sub>2</sub></i>	A causes B to go here and there
<i>A tsulai<sub>1</sub></i>	A rolls, slides
<i>A tsulai<sub>2</sub> B</i>	A causes B to roll/slide
<i>A vazı B se C</i>	A puts B in/on/at C
<i>A vıazi B (apo C)</i>	A takes B out (of C)
<i>A vıeni (apo C)</i>	A goes out (of C)
<i>A viθizi B</i>	A sinks B
<i>A viθizete</i>	A sinks, is sunk
<i>A voltari</i>	A walks about
<i>A vriskete se C</i>	A is (found) in/on/at C
<i>A vuljazi<sub>1</sub></i>	A sinks
<i>A vuljazi<sub>2</sub> B</i>	A sinks B
<i>A vutai<sub>2</sub> B se C</i>	A immerses/dips B in C

*A vutai*<sub>1</sub> (*kani vutja*)

*A vutjete se C*

*A xamiloni*<sub>1</sub>

*A xamiloni*<sub>2</sub> *B*

*A xini B*

*A xinete (se C)*

*A xoni B se C*

*A xonete se C*

*A xoropiḏai*

*A xorevi*<sub>1</sub>

A dives

A gets immersed into C

A lowers, stoops

A lowers B

A pours B

A is poured/spilled, flows (into C)

A sticks B in(to) C

A sticks/is stuck in(to) C,  
gets stuck/engulfed in(to) C

A hops, jumps about

A dances

LIST II: Five test frames for Modern Greek verbs of motion

- (a) A \_\_\_\_\_ (B) (ja) 10 metra / pontus / xiljometra  
A \_\_\_\_\_ (B) (for) 10 metres / centimetres / kilometres

*akoluθo, akoluθjeme; aneveno, anevazo; apomakrino, apomakrinome;*  
*busulizo; virizo<sub>1,2</sub>; vlistrao<sub>1,2</sub>; kalpazo; kataθioko, kataθiokome;*  
*katevazo, kateveno; ktrakilao; kikloforo; kilao<sub>1,2</sub>, kiljeme;*  
*kiniyao; kolibao; kutruvalao; kuvalao, kuvaljeme; metafero,*  
*metaferome; oθiyo, oθiyume; paramerizo, paramerizome; perpatao;*  
*petao<sub>1</sub>; piveno; prospernao; viθizo, viθizome; vuljazo<sub>1,2</sub>; vutao<sub>1,2</sub>*

- (b) A \_\_\_\_\_ (B) apo afto to simio mexri ekino  
A \_\_\_\_\_ (B) from this point up to that one

*akoluθo, akoluθjeme; aneveno, anevazo; anevokateveno, anevokatevazo;*  
*busulizo; eksfenθonizo, eksfenθonizome; ektoksevo, ektoksevome;*  
*erxome; ferno; (ftano); gremizo, gremizome; virizo<sub>1,2</sub>; vlistrao<sub>1,2</sub>;*  
*ipoxoro; ipsono, ipsonome; kalpazo; kataθioko, kataθiokome; katevazo,*  
*kateveno; ktrakilao; kilao<sub>1,2</sub>, kiljeme; kolibao; ksanaerxome;*  
*ksanayirizo; kutruvalao; kuvalao, kuvaljeme; metafero, metaferome;*  
*oθiyo, oθiyume; perikiklono, perikiklonome; perpatao; piveno; piθao;*  
*pleo; plisiazoo; rixno, rixnome; (para)serno, (para)sernome; sikono,*  
*sikonome; sinoθevo, sinoθevome; skarfalono; (sproxno); strivo<sub>1,2</sub>;*  
*taksiθevo; tinazo, tinazome; travao, travjeme; trexo<sub>1,2</sub>; tsulao<sub>1,2</sub>;*  
*vazo; viθizo, viθizome; vuljazo<sub>1,2</sub>; vutao<sub>1,2</sub>; xamilono<sub>1,2</sub>; xino,*  
*xinome; xono, xonome*

- (c) A \_\_\_\_\_ (B) apo afto to simio se ekino  
A \_\_\_\_\_ (B) from this point to that one

*akoluθo, akoluθjeme; (akubao<sub>2</sub>); aneveno, anevazo; anevokateveno, anevokatevazo; (bazo, beno); busulizo; eksfenθonizo, eksfenθonizome; ektoksevo, ektoksevome; erxome; ferno; ftano<sub>1,2</sub>; gremizo, gremizome; γirizo<sub>1,2,3</sub>; vlistrao<sub>1,2</sub>; ipoxoro; ipsono, ipsonome; kalpazo; kataθioko, kataθiokome; katevazo, kateveno; (kaθome, kaθizo); katrakilao; kikloforo; kilao<sub>1,2</sub>, kiljeme; kiniγao; kolibao; (kremao, kremome); ksanaerxome; ksanaγirizo; ksaplono; kutruvalao; kuvalao, kuvaljeme; metafero, metaferome; metakomizo<sub>1,2</sub>; oθiγo, oθiγume; parapatao; pefto; perikiklono, perikiklonome; pernao<sub>1,2</sub>; perpatao; petao<sub>1,2</sub>, petjeme/petaγome<sub>1,2</sub>; piγeno; piγenoerxome; piγenoferno; piθao; pleo; plisiazoz; rixno, rixnome; serno, sernome; sikono, sikonome; sinoθevo, sinoθevome; skarfalono; (sproxno); (stino, stinome); strivo<sub>1,2</sub>; taksiθevo; tinazo, tinazome; (travao); trexo<sub>1,2</sub>; tsulao<sub>1,2</sub>; (vazo); vγazo, vγeno; viθizo, viθizome; vuljazo; vutao<sub>1,2</sub>; xamilono<sub>1,2</sub>; xino, xinome; (xono, xonome); (xorevo); xoropiθao*

- (d) A \_\_\_\_\_ (B) apo afto to simio  
A \_\_\_\_\_ (B) from this point

*akoluθo, akoluθjeme; aneveno, anevazo; anevokateveno, anevokatevazo; apoγiono, apoγionome; apomakrino, apomakrinome; apopleo; armenizo; bazo, beno; busulizo; eksfenθonizo, eksfenθonizome; ektoksevo, ektoksevome; erxome; ferno; fevγo; ftano; gremizo, gremizome; γirizo<sub>3</sub>; vlistrao<sub>1,2</sub>; ipoxoro; ipsono, ipsonome; kalpazo; kataθioko, kataθiokome; katevazo, kateveno; katrakilao; kilao<sub>1,2</sub>, kiljeme; kiniγao; kolibao; kremao, kremjeme; ksekinao; kunjeme, kunaο<sub>1</sub>; kutruvalao; kuvalao, kuvaljeme; metafero, metaferome; metakomizo<sub>1,2</sub>; oθiγo, oθiγume; paramerizo, paramerizome; parapatao; pefto; perifero, periferome; perikiklono, perikiklonome; periplanjeme; pernao<sub>1,2</sub>; perpatao; petao<sub>1,2</sub>, petjeme/petaγome<sub>1,2</sub>; piγeno; piγenoerxome; piγenoferno; piθao; pleo; plisiazoz; rixno, rixnome; (salevo);*

serjanizo; (para)serno, (para)sernome, parasirome; sikono, sikonome;  
sinoðevo, sinoðevome; skarfalono; (skivo); (sproxno); strivo<sub>1,2</sub>;  
sulatsaro; taksiðevo; tinazo, tinazome; (travao); trexo<sub>1,2</sub>;  
trivirnao/trivirizo<sub>1,2</sub>; tsulao<sub>1,2</sub>; vçazo, vçeno; viθizo, viθizome;  
vuljazo; vutao<sub>1</sub>; xamilono<sub>1,2</sub>; xino, xinome; xono, xonome; (xorevo);  
xoropiðao

(e) A \_\_\_\_\_ (B) se afto to simio  
A \_\_\_\_\_ (B) to/on/at/in this point

akoluθo, akoluθjeme; akubao<sub>1,2</sub>; anakatevo, anakatevome;  
anapoðoyirizo, anapoðoyirizome; aneveno, anevazo; anevokatevazo,  
anevokateveno; (apoyiono, apoyionome); armenizo; bazo, beno; bizo,  
bizome; busulizo; eksfenðonizo, eksfenðonizome; ektoksevo,  
ektoksevome; erxome; ferno; fevvo; ftano; gremizo, gremizome;  
virizo<sub>1,2,3</sub>; vlistrao<sub>1,2</sub>; vonatizo; ipoxoro; ipsono, ipsonome;  
kalpazo; kataðioko, kataðiokome; katevazo, kateveno; kaθome, kaθizo;  
katrakilao; kikloforo; kilao<sub>1,2</sub>, kiljeme; kiniçao; kolibao; kremao,  
kremjeme; ksanaerxome; ksanaçirizo; ksaplono<sub>2,3</sub>; kunao<sub>1,2</sub>, kunjeme;  
kutruvalao; kuvalao, kuvaljeme; metafero, metaferome; metakomizo;  
oðiçvo, oðiçvume; parapatao; pefto; perifero, periferome; perikiklono,  
perikiklonome; periplanjeme; perpatao; petao<sub>1,2</sub>, petjeme/petavome<sub>1,2</sub>;  
piçeno; piçenoerxome; piçenoferno; piðao; pleo; plisiazoz<sub>1,2</sub>;  
prosviono, prosvionome; prospernao; rixno, rixnome; salevo;  
serjanizo; serno, sernome; sikono, sikonome; sinoðevo, sinoðevome;  
(siome); skarfalono; skivo; (sproxno); stino, stinome; strifoçirizo;  
strivo<sub>1,2</sub>; sulatsaro; taksiðevo; tarakunao, tarakunjeme; tarazo,  
tarazome; tinazo, tinazome; tradazo, tradazome; (travao); tremo;  
trexo<sub>1,2</sub>; trivirnao/trivirizo<sub>1,2</sub>; tsulao<sub>1,2</sub>; vazoz; vçazo, vçeno;  
viθizo, viθizome; vuljazoz<sub>1,2</sub>; vutao<sub>1,2</sub>, vutjeme; xamilono<sub>1,2</sub>; xino,  
xinome; xono, xonome; xorevo; xoropiðao

A	B	C	D	E	F	
	I : <input type="checkbox"/> II : <input type="checkbox"/> III : <input type="checkbox"/>	COMMENTS I : <input type="checkbox"/> II : <input checked="" type="checkbox"/> III : <input type="checkbox"/>	COMMENTS I : <input checked="" type="checkbox"/> II : <input checked="" type="checkbox"/> III : <input type="checkbox"/>	COMMENTS unless: iteration I : <input checked="" type="checkbox"/> II : <input checked="" type="checkbox"/> III : <input checked="" type="checkbox"/>	COMMENTS even if iteration I : <input checked="" type="checkbox"/> II : <input checked="" type="checkbox"/> III : <input checked="" type="checkbox"/>	
tremo tremble	xino pour	gremizo pull down, hurl	12 pigeno <sub>1,2</sub> go, take to	piδao Jump	3 sikono raise/lift	7
perifero carry around	xinome	vulfazo <sub>1,2</sub> sink	epistrefo return	prospernaο overtake, pass by	sikonome rise/get up	4
periferome go around	Δiaskizo traverse	viθizo sink	γirizo piso return	talandevo oscillate	vutao dive	9
kikloforo circulate	xorevo dance	viθizome	erxome come	talandevome	tinazo shake up	9
trigirizo roam around	xoropiδao hop/jump about	11 metakomizo move house/ furniture	οδixο <sub>2</sub> lead	14 eoro, eorume sway	tinazome	9
	kiljeme wallow	metakomizome		beno get in	ektoksevo launch	9
	γlistraο slide, slip	15 perikiklono encircle	1	bazo put in	eksfenδonizo hurl	8
	οδigo <sub>1</sub> drive	14 skarfalono climb	3	bizo stick in	eksfenδonizome	8
	metafero transport/ carry over	metafero transport/ carry over	6	xono stick into	stelno send	10
	metaferome	metaferome		vξeno go out	petao <sub>2</sub> throw	10
	kuvalao carry	kuvalao carry		vξazo take out	strivo <sub>1,2</sub> turn	9
	kuvaljeme	kuvaljeme		vazo put in/on/at	γirizo <sub>1,2</sub> turn	9
		aneveno ascend	aneveno ascend		kaθizo sit (TR)	
		anevazo take up	anevazo take up		γonatio <sub>1,2</sub> kneel	
		kateveno descend	kateveno descend		tradazo shake, jolt	
		katevazo take down	katevazo take down		tradazome	
		ipsono raise	ipsono raise	2b	γlistraο <sub>1</sub> slip	15
		isponome	isponome		ksaplono <sub>2</sub> lie down	
		xamilono <sub>1,2</sub> stoop, lower	xamilono <sub>1,2</sub> stoop, lower		fevxo leave	
		sikono raise/lift	sikono raise/lift		apoξiono take off	
		sikonome rise/get up	sikonome rise/get up		apoξionome	
		pernaο <sub>1,2</sub> pass	pernaο <sub>1,2</sub> pass		petjeme <sub>2</sub> jump up	13
		pefto fall	pefto fall		(ksekinao) set out, start off	
perpataο walk			perpataο walk		salevo stir, move slightly	9
trexo run			trexo run		kunao move	
kilao roll			kilao roll			
katrakilao roll down			katrakilao roll down			
petao <sub>1</sub> fly			petao <sub>1</sub> fly			
kolibao swim			kolibao swim	2a		
serno drag			serno drag			
sernome			sernome			
taksiδevo travel			taksiδevo travel			
kinixao chase, hunt			kinixao chase, hunt			
akoluθo follow			akoluθo follow			
akoluθjeme			akoluθjeme			
kataδjoko chase, pursue			kataδjoko chase, pursue			
kataδjokome			kataδjokome			
sinoδevo accompany			sinoδevo accompany			
sinoδevome			sinoδevome			

LIST III: A classification of Modern Greek verbs of motion along the process-event continuum

LIST IV: Relative agentivity of selected causative Modern Greek verbs of motion

VERBS	ANIMACY				INTENSION			CONTROL			CAUSE		
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	DC	IC	NC
			SM	NSM									
			V	NF									
<i>metakomizo</i> <sub>2</sub> move (furniture)	+	-	-	-	-	+	-	+	-	-	+	-	-
<i>vlistrao</i> <sub>2</sub> slide	+	-	-	-	-	+	-	+	-	-	+	-	-
<i>strivo</i> <sub>2</sub> turn	+	+	-	-	-	+	-	+	-	-	+	-	-

\* The scales are as described in section 3.3 following Givón's (1984) criteria. 'Intention' stands for 'volition' and the scale is: SI=strong intent, WI=weak intent (which I call 'simple intent') and NI=non-intent (instead of Givon's 'non-voluntary')  
The 'control' scale is:  
CC=clear control, WC=weak control, NC=no control  
The 'causation' scale is:  
DC=direct cause, IC=indirect cause and NC=non-cause  
'Cause' is used instead of 'causation'

\* HUM=human, AN=animacy, INAN=inanimacy

\* SM=self-moving object, NSM=non-self-moving object

\* V=vehicle (or conveyance), NF=natural force or natural phenomenon

VERBS	ANIMACY				INTENSION			CONTROL			CAUSE			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	DC	IC	NC	
			SM		NSM									
			V	NF										
<i>plisiaz02</i> approach, bring close to	+	+	-	-	-	+	-	+	-	-	+	-	-	
<i>epistref02</i> return, bring back	+	x	-	-	-	+	-	+	-	-	+	-	-	
<i>tinazo</i> shake up	+	+	+	-	-	+	-	+	-	-	+	-	-	
<i>paramerizo2</i> put aside	+	x	-	x	-	+	-	+	x	-	+	x	-	
<i>metafero</i> transport	+	+	+	x	-	+	-	+	-	-	+	-	-	
<i>virizo2</i> turn	+	+	+	-	x	+	-	+	-	-	+	-	-	
<i>ipsono</i> raise	+	+	x	-	-	+	-	+	-	-	+	-	-	
<i>kunao2</i> move	+	+	+	+	-	+	-	+	-	-	+	-	-	
<i>xamilon02</i> lower	+	+	x	x	-	+	-	+	-	-	+	-	-	

VERBS	ANIMACY				INTENSION			CONTROL			CAUSE			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	DC	IC	NC	
			SM											NSM
			V	NF										
<i>petao<sub>2</sub></i> throw	+	+	+	+	-	-	+	-	+	-	-	+	-	-
<i>rixno</i> throw, drop	+	+	+	+	x	-	+	x	+	x	-	+	-	-
<i>epanafero</i> bring back	+	-	-	-	-	-	+	-	+	+	-	+	+	-
<i>ki<sub>lao</sub><sub>2</sub></i> roll	+	x	-	-	-	-	+	-	+	x	-	+	-	-
<i>tradazo</i> shake, jolt	+	+	-	x	x	-	+	-	+	-	-	+	-	-
<i>tarazo</i> shake, stir	+	x	-	x	x	-	+	-	+	-	-	+	-	-
<i>bizo</i> stick/ engulf into	+	+	+	-	-	-	+	-	+	-	-	+	-	-
<i>viθizo</i> sink	+	x	+	+	-	-	+	-	+	-	-	+	-	-
<i>vuljazo<sub>2</sub></i> sink	+	x	-	x	-	-	+	-	+	-	-	+	-	-

VERBS	ANIMACY				INTENSION			CONTROL			CAUSE			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	DC	IC	NC	
			SM	NSM										
		V	NF											
<i>kikloforo<sub>2</sub></i> circulate	+	x	-	-	-	+	-	+	x	-	+	-	-	
<i>aposiro</i> withdraw	+	x	-	-	-	+	-	+	+	-	+	+	-	
<i>anevazo</i> raise, take up	+	+	+	-	x	-	+	-	+	+	-	+	+	-
<i>katevazo</i> take down	+	+	+	-	x	-	+	-	+	+	-	+	+	-
<i>sikono</i> lift	+	+	x	+	-	-	+	-	+	+	-	+	+	-
<i>perifero</i> carry about	+	+	x	-	-	+	-	+	+	-	+	+	-	
<i>apomakrino</i> take away, remove	+	+	-	+	x	-	+	-	+	+	-	+	+	-
<i>xono</i> stick into	+	+	+	-	-	+	-	+	x	-	+	x	-	
<i>serno</i> drag	+	+	+	+	-	-	+	-	+	+	-	+	+	-

VERBS	ANIMACY				INTENSION			CONTROL			CAUSE			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	DC	IC	NC	
			SM	NSM										
		V	NF											
<i>stelno</i> send	+	+	-	-	-	+	-	+	+	-	+	X	-	
<i>ferno</i> bring	+	+	+	+	-	-	+	-	+	+	-	+	X	-
<i>vazo</i> put	+	+	+	-	X	-	+	-	+	+	-	+	+	-
<i>vyazo</i> take out	+	+	+	-	X	-	+	-	+	+	-	+	+	-
<i>piveno<sub>2</sub></i> take to	+	+	+	-	-	-	+	-	+	+	-	+	+	-
<i>trexo<sub>2</sub></i> make s.o. run	+	X	-	-	-	-	+	-	-	+	-	-	+	-

LIST V: Relative agentivity of selected non-causative Modern Greek verbs of motion

VERBS	ANIMACY					INTENSION			CONTROL		
	HUM	AN	INAN			SI	WI	NI	CC	WC	NC
			SM		NSM						
			V	NF							
<i>kataðioko</i> chase, pursue	+	+	+	-	-	+	-	-	+	-	-
<i>kiniyao</i> chase, hunt, run after	+	+	+	-	-	+	-	-	+	-	-
<i>skarfalono</i> climb	+	+	-	-	-	X	+	-	+	-	-
<i>kolibao</i> swim	+	+	-	-	-	X	+	-	+	-	-
<i>ormao</i> dash, fall violently on	+	+	+	-	X	+	-	-	+	-	-
<i>xorevo</i> dance	+	X	-	-	-	X	+	-	+	-	-

\* The notations used here are the same as those used in List IV

VERBS

	ANIMACY				INTENSION			CONTROL		
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC
			SM	NSM						
			V	NF						
<i>vađizo</i> walk, march	+	-	-	-	-	+	-	+	-	-
<i>porevome</i> walk (a long distance)	+	x	-	-	-	+	-	+	-	-
<i>pezoporo</i> walk, go on foot	+	-	-	-	-	+	-	+	-	-
<i>sulatsaro</i> stroll, saunter	+	-	-	-	-	+	-	+	-	-
<i>serjanizo</i> walk around	+	-	-	-	-	+	-	+	-	-
<i>busulizo</i> crawl (as of a baby)	+	-	-	-	-	+	-	+	-	-
<i>perpatao</i> walk	+	+	-	-	-	+	-	+	-	-
<i>periplanjeme</i> wander	+	+	-	-	-	+	x	+	-	-
<i>vonatizo<sub>1</sub></i> kneel	+	x	-	-	-	+	x	+	x	-

VERBS

	ANIMACY				INTENSION			CONTROL		
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC
			SM							
			V	NF						
<i>kaθome<sub>2</sub></i> sit	+	x	-	-	-	+	x	+	x	-
<i>ksaplonο<sub>2</sub></i> lie down	+	+	-	-	-	+	x	+	x	-
<i>πιθαο</i> jump, leap	+	+	-	x	x	+	-	+	-	-
<i>trexo<sub>1</sub></i> run	+	+	+	x	x	+	-	+	-	-
<i>metakomizo</i> move (house)	+	-	-	-	-	+	-	+	-	-
<i>salevo</i> stir, move slightly	+	+	-	-	-	+	-	+	-	-
<i>strivo<sub>1</sub></i> turn	+	+	+	+	x	-	+	-	+	-
<i>virizo<sub>1</sub></i> turn	+	+	+	+	x	-	+	-	+	-
<i>taksiθεvo</i> travel	+	+	+	-	x	-	+	x	+	-
<i>akoluθo</i> accompany	+	+	+	-	-	-	+	-	+	+

VERBS

	ANIMACY				INTENSION			CONTROL		
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC
			SM	NSM						
		V	NF							
<i>pleo</i> sail	+	+	+	-	-	+	-	+	+	-
<i>petao<sub>1</sub></i> fly	x	+	+	-	-	+	-	+	+	-
<i>piveno</i> go	+	+	+	-	+	-	-	+	+	-
<i>beno</i> get into, enter	+	+	+	+	+	-	-	+	+	-
<i>vveno</i> go out	+	+	+	+	+	-	-	+	+	-
<i>kikloforo<sub>1</sub></i> circulate	+	+	+	-	+	-	-	+	+	-
<i>aneveno</i> ascend	+	+	+	+	+	-	-	+	+	-
<i>kateveno</i> descend	+	+	+	+	+	-	-	+	+	-
<i>ðiasxizo</i> traverse	+	+	+	+	+	-	-	+	+	-
<i>fevvo</i> leave	+	+	+	+	+	-	-	+	+	x

VERBS	ANIMACY				INTENSION			CONTROL			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	
			SM	NSM							
			V	NF							
<i>plisiazō<sub>1</sub></i> approach	+	+	+	+	+	-	+	X	+	+	X
<i>virizō<sub>3</sub></i> ( <i>pišo</i> ) return	+	+	+	-	+	-	+	X	+	+	X
<i>epistrefō<sub>1</sub></i> return	+	+	+	-	+	-	+	X	+	+	X
<i>ipoxoro</i> recede, subside	+	+	X	+	-	-	+	+	+	+	X
<i>sikonome</i> rise, get up	+	+	+	+	+	-	+	-	+	-	-
<i>ipsonome</i> rise, be elevated/ raised	X	X	+	+	+	-	+	-	+	+	-
<i>xamilono</i> stoop, lower	+	+	+	+	+	-	+	-	+	+	-
<i>petayome<sub>2</sub></i> jump up, be thrown up	+	+	X	-	+	-	+	X	+	+	-

VERBS

	ANIMACY				INTENSION			CONTROL			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	
			SM								
			V	NF							
<i>tinazome</i> shake/jump up, be shaken up, jerk	+	+	+	X	+	-	+	X	+	+	-
<i>apomakrinome</i> move away, be removed	+	+	+	+	X	-	+	+	+	+	X
<i>epistrefome</i> be returned	X	X	X	-	+	-	-	+	-	-	+
<i>sernome</i> crawl	+	+	+	-	+	X	X	+	X	X	+
<i>oðiyume</i> be led/driven	+	+	+	-	-	-	+	+	-	+	+
<i>metaferome</i> be transported, change premises	+	+	+	-	-	-	+	+	-	X	+
<i>erxome</i> come	+	+	+	-	+	-	+	+	+	+	+
<i>xonome</i> get stuck/ engulfed	+	+	+	X	+	-	+	-	+	-	-

VERBS	ANIMACY				INTENSION			CONTROL			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	
			SM								NSM
			V	NF							
<i>pefto</i> fall	+	+	+	+	+	-	X	+	-	X	+
<i>viθizome</i> sink	+	+	+	-	+	-	X	+	-	X	+
<i>γlistrao<sub>1</sub></i> slip, slide	+	+	-	-	+	-	X	+	-	X	+
<i>anevazome</i> be raised/ taken up	+	+	+	-	+	-	-	+	-	-	+
<i>katevazome</i> be taken down	+	+	+	-	+	-	-	+	-	-	+
<i>kuvaljeme</i> be carried	+	+	-	-	+	-	-	+	-	-	+
<i>kutruvalo</i> roll down	+	+	X	-	-	-	-	+	-	-	+
<i>vuljazo</i> sink	+	+	+	-	+	-	-	+	-	-	+
<i>tremo</i> tremble	+	+	+	+	+	-	-	+	-	-	+
<i>trandazome</i> be shaken/jolted	+	+	+	-	+	-	-	+	-	-	+

VERBS

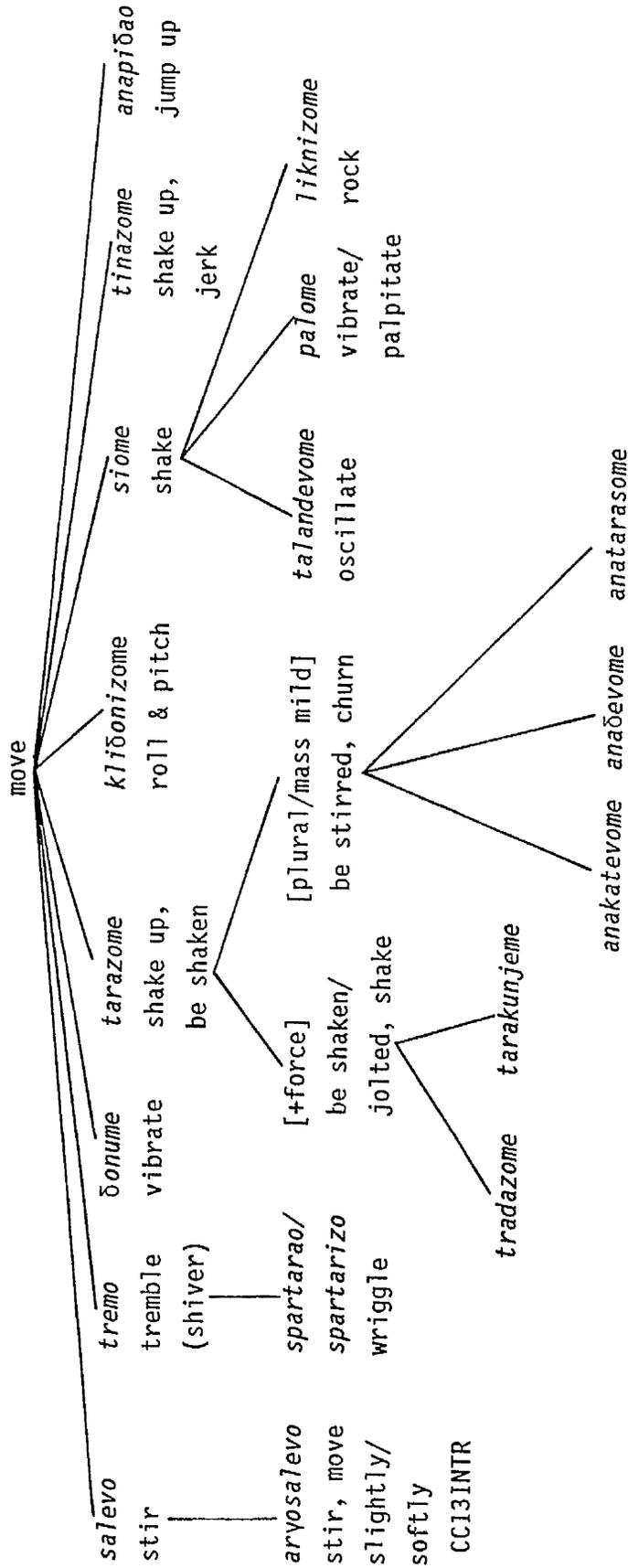
	ANIMACY				INTENSION			CONTROL			
	HUM	AN	INAN		SI	WI	NI	CC	WC	NC	
			SM	NSM							
		V	NF								
<i>tarakunjeme</i> be shaken	+	+	+	-	+	-	-	+	-	-	+
<i>katrakilao</i> roll down	x	x	x	-	+	-	-	+	-	-	+
<i>tarazome</i> stir, be stirred	-	-	-	+	+	-	-	+	-	-	+
<i>bizome</i> get stuck/ engulfed	-	-	-	-	+	-	-	+	-	-	+
<i>kilao<sub>1</sub></i> roll	-	-	-	x	+	-	-	+	-	-	+

LIST VI: Taxonomic sets and natural classes of Modern Greek verbs  
of motion

- 1 *kunjeme* = move [partial motion]
- 2 *kunao* = cause to move [partial motion]
- 3 *piveno<sub>1</sub>* / *erxome* = go / come
- 4 *perpatao* / *vaδizo* = walk
- 5 *fevvo* / *anaxoro* = leave, depart
- 6 *aneveno* / *anerxome* = ascend [upward motion]
- 7 *anevazo* = raise, carry/take up
- 8 *sikono* = raise, lift
- 9 *kateveno* / *katerxome* = descend [downward motion]
- 10 *katevazo* = bring/take down
- 11 *pefto* = fall
- 12INTR *spevdo* / [move rapidly] = hasten
- 12TR [cause something to move fast]
- 13INTR [move slowly]
- 13TR [cause something to move slowly]
- 14 *rixno* / *petao<sub>2</sub>* = throw
- 15 *ferno* / *piveno<sub>2</sub>* = bring / take to
- 16 *strivo<sub>1</sub>* / *virizo<sub>1</sub>* = turn [rotary motion]
- 17 *strivo<sub>2</sub>* / *virizo<sub>2</sub>* = cause to turn
- 18 [roam around]
- 19 *viθizome* = sink<sub>INTR</sub>
- 20 *stelno* = send
- 21 *beno* = get into, enter
- 22 *vveno* = go out/come out
- 23 *piθao* = jump
- 24 *pernao* = pass
- 25 [CL - object's main part or all limbs in contact with ground]
- 26INTR [roll, slide]
- 26TR [roll, slide]
- 27 (navigation terms)
- 28 [take away]
- 29 [bring/take back]
- 30 [go back]

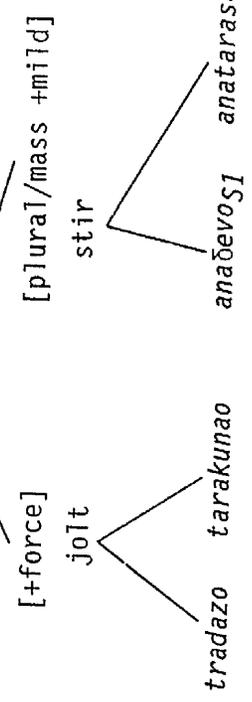
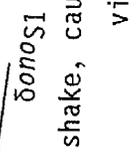
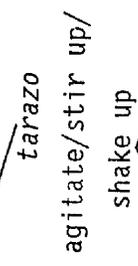
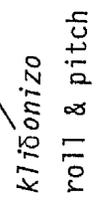
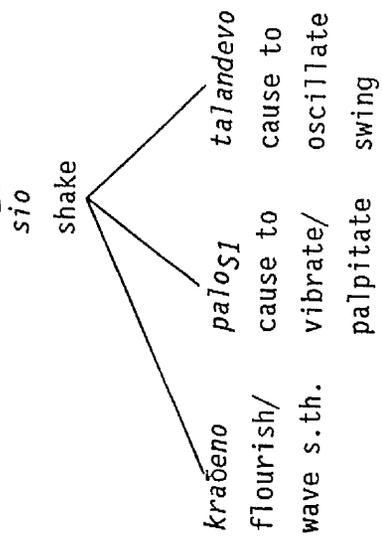
- 31 [cause something to change location - object's main part or all limbs in contact with ground]
- 32 *petao<sub>1</sub>* = fly
- 33 *viθizo* = cause to sink
- 34 [take someone or something here and there]
- 35 *proxoro* = advance
- 36 *opisθoxoro* = retreat, move backwards
- 37 *vyazo* = take/bring out
- 38 *vazo* = put

1. *kunjeme* [partial motion]

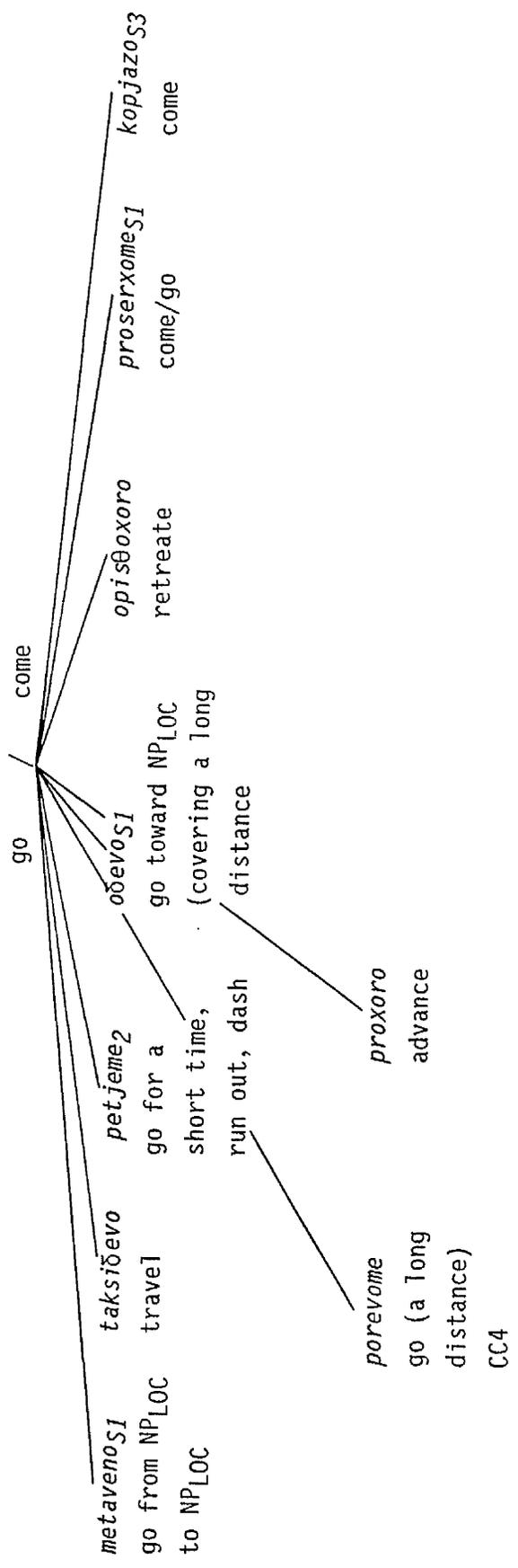


2. *kunao* [partial motion]

cause to move

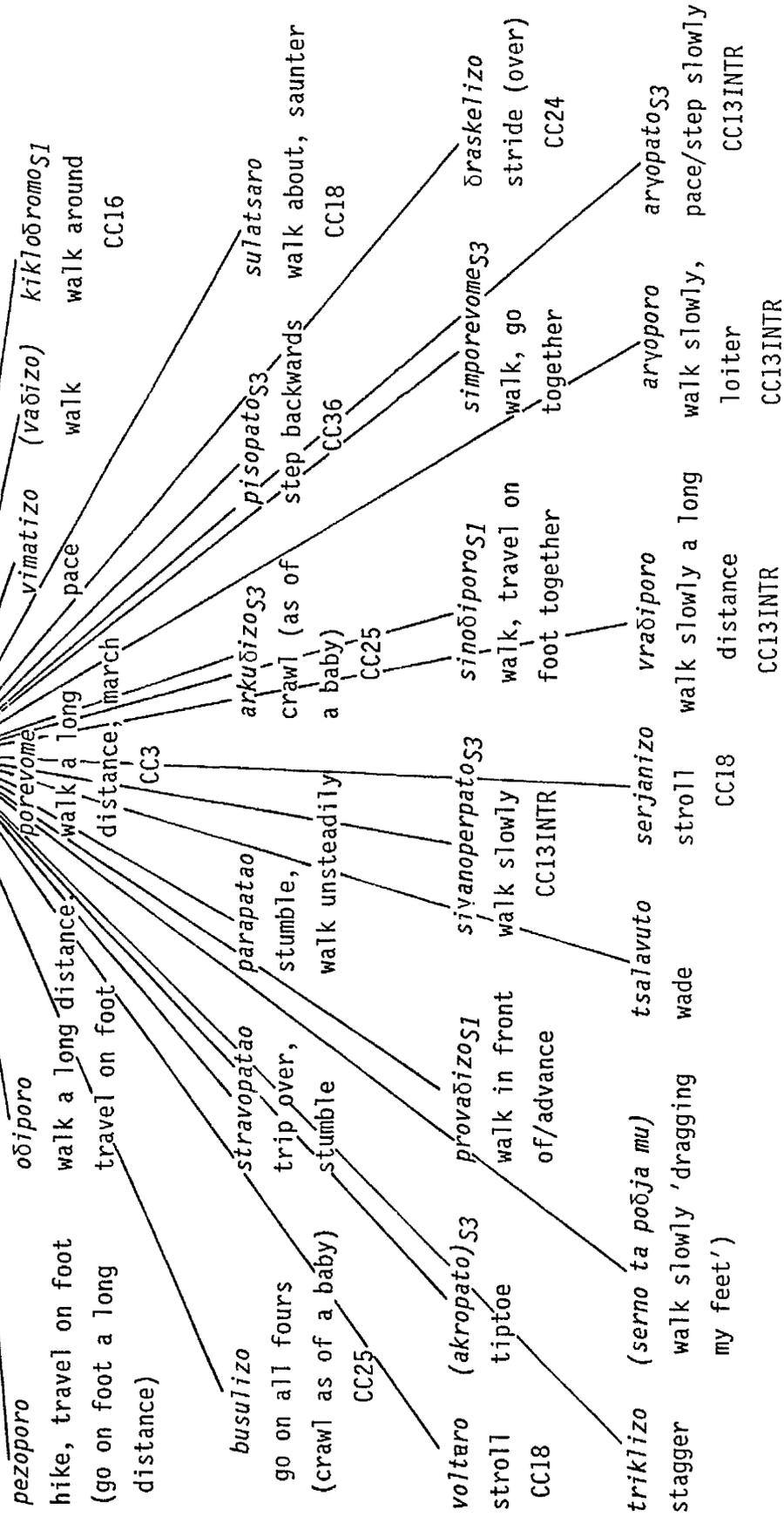


3. *piveno<sub>1</sub> / erxome*

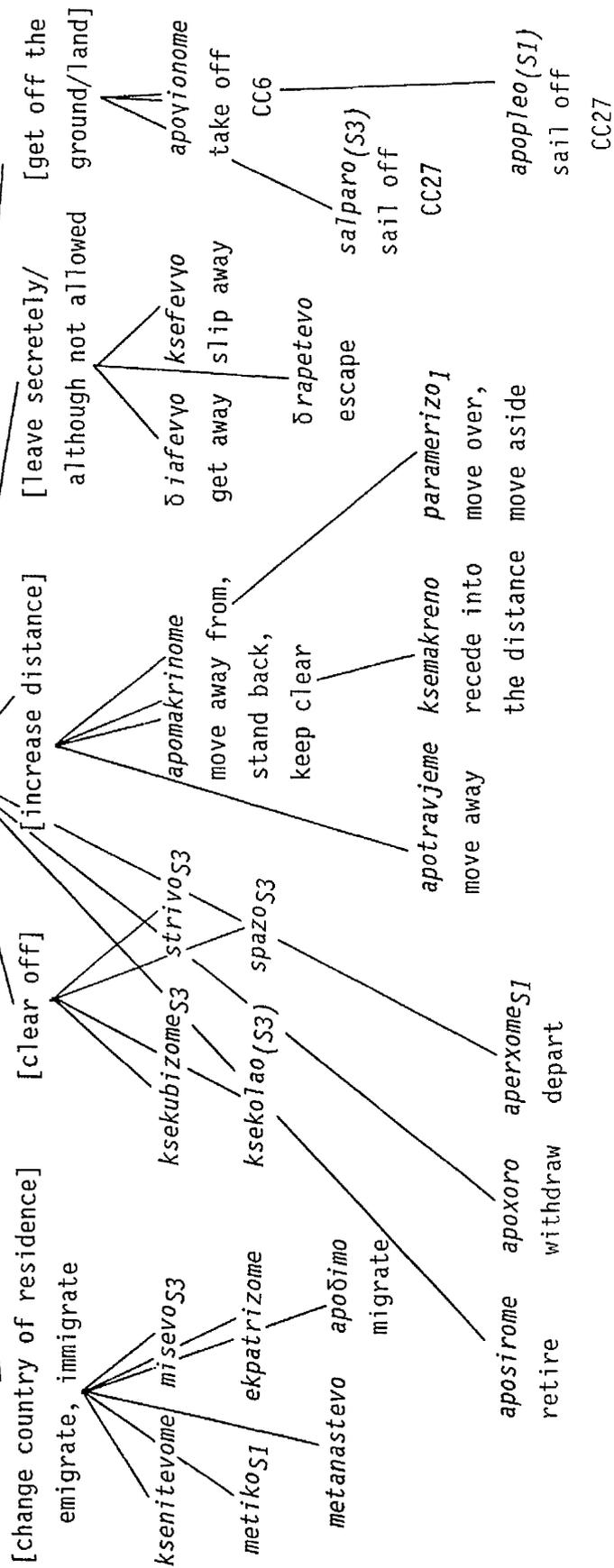


4. *perpatao / vaðizo*

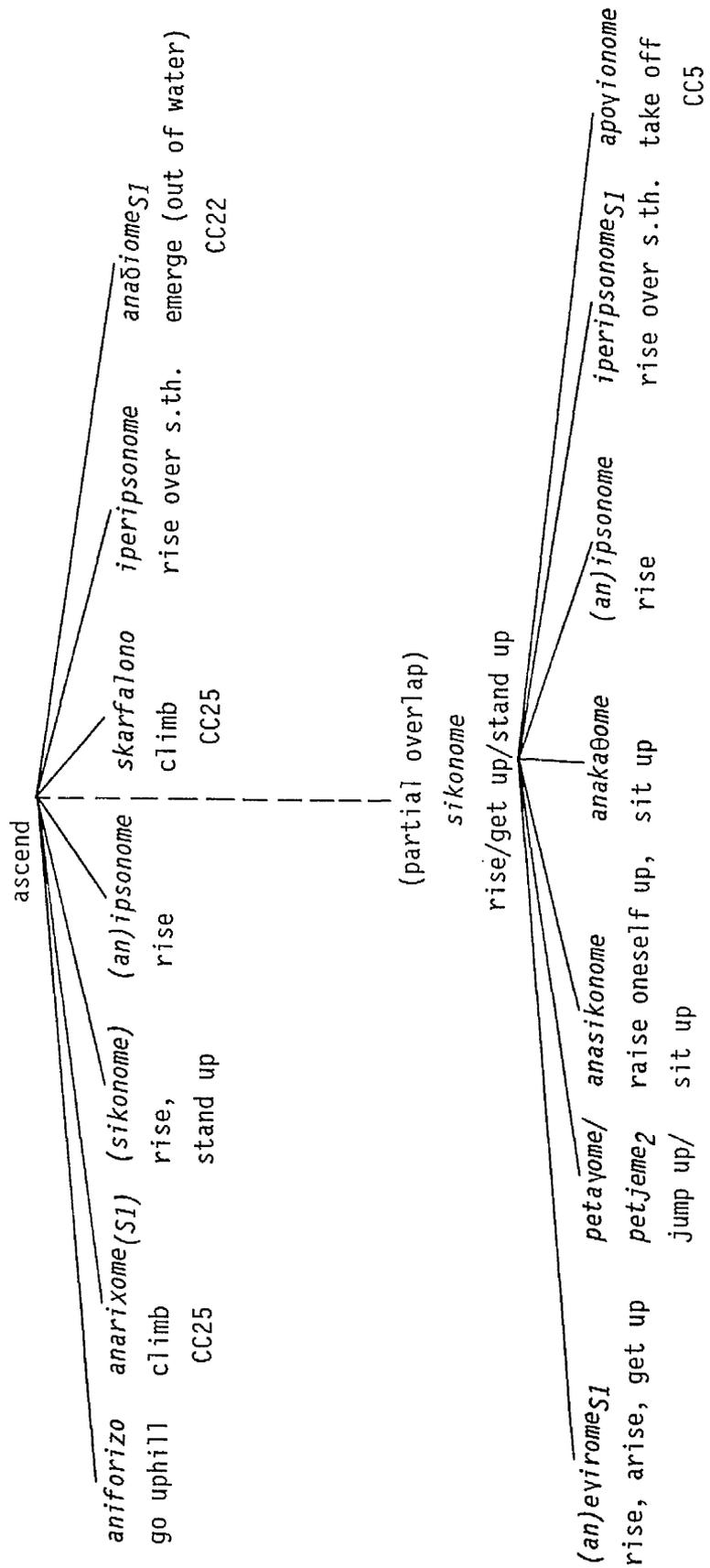
walk



5. *fewo / anaxoro*  
leave, depart



6. *aneveno / anerxome* [upward motion]



7. *anevazo*

raise, carry/take up

(*sikono*)  
lift, raise

(*ipsono*)  
raise, elevate

*anipsono*  
raise

(*iperipsono*)  
raise over s.th.

8. *sikono*

raise, lift

*eviroS1*  
raise

*aneviro*  
erect

*anasikono*  
lift  
(slightly) elevate

(*an*)*ipsono*  
raise,  
raise over s.th.

*iperipsono*  
raise over s.th.

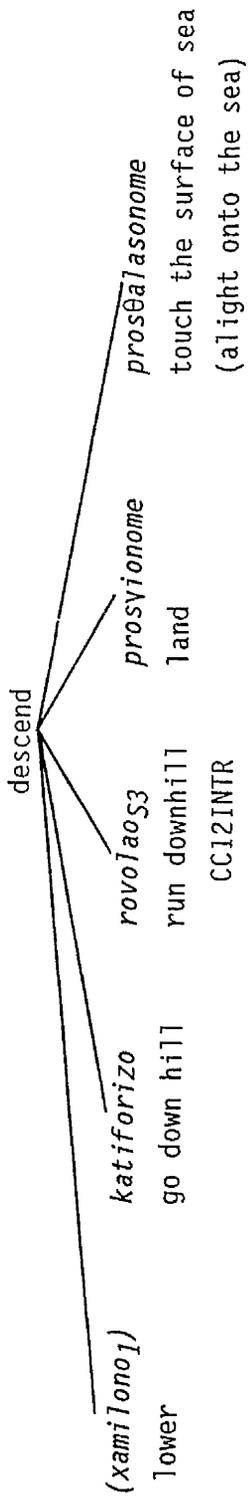
(*apoviono*)  
take off

*anasiro*  
drag up  
CC31

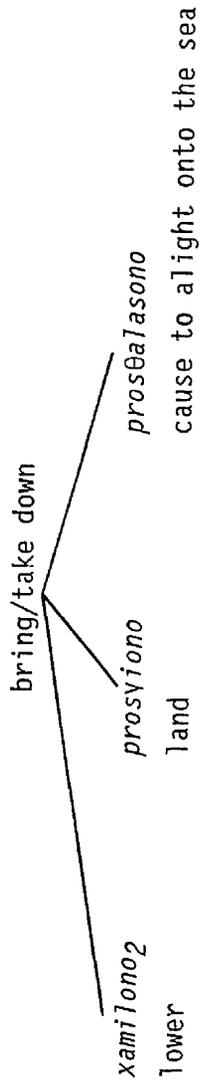
*viraroS3*  
heave  
(an anchor)  
CC27

*anelkioS1*  
drag up, lift up  
CC31, 26TR

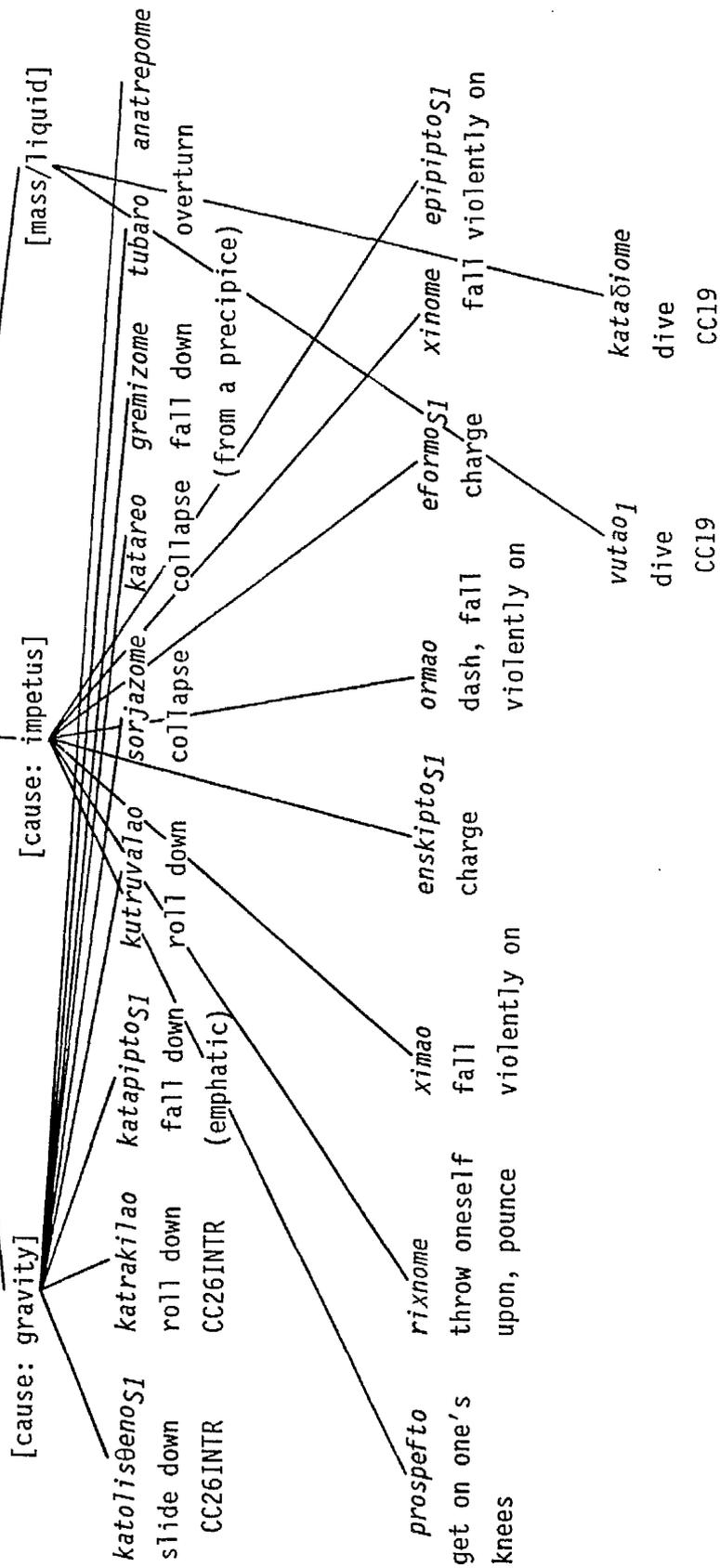
9. *kateveno / katerxome* [downward motion]

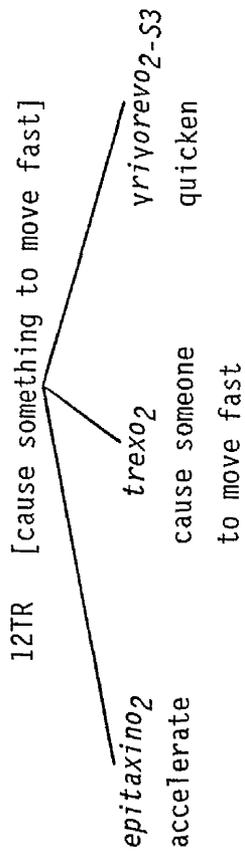
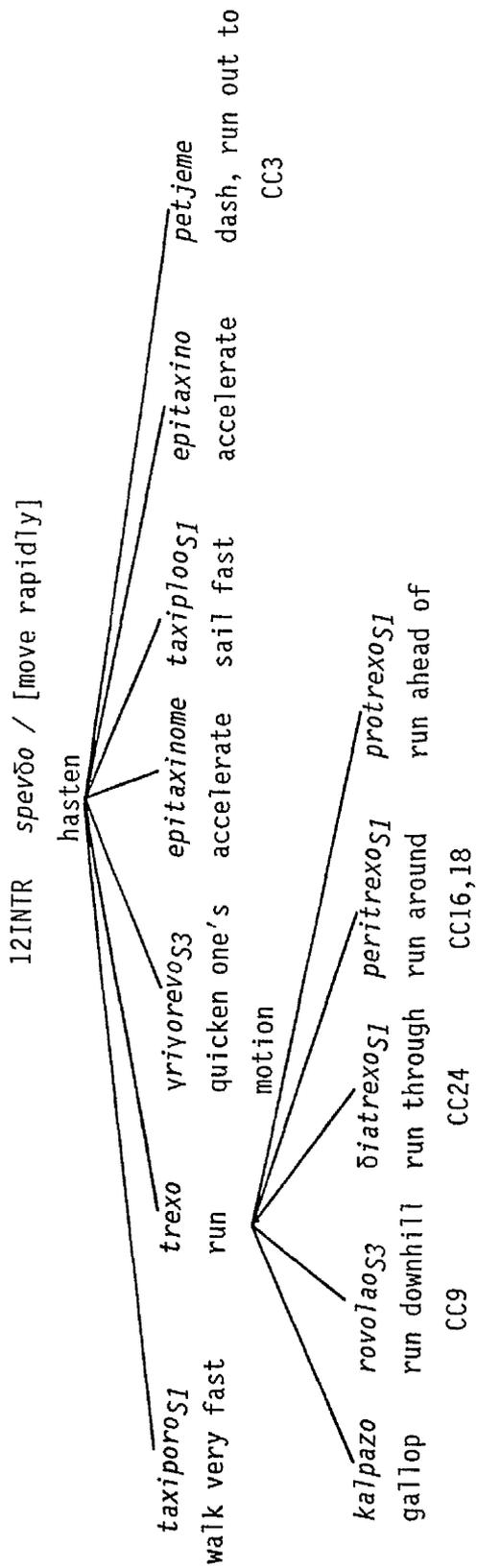


10. *katevazo*



11. *pefto*  
fall

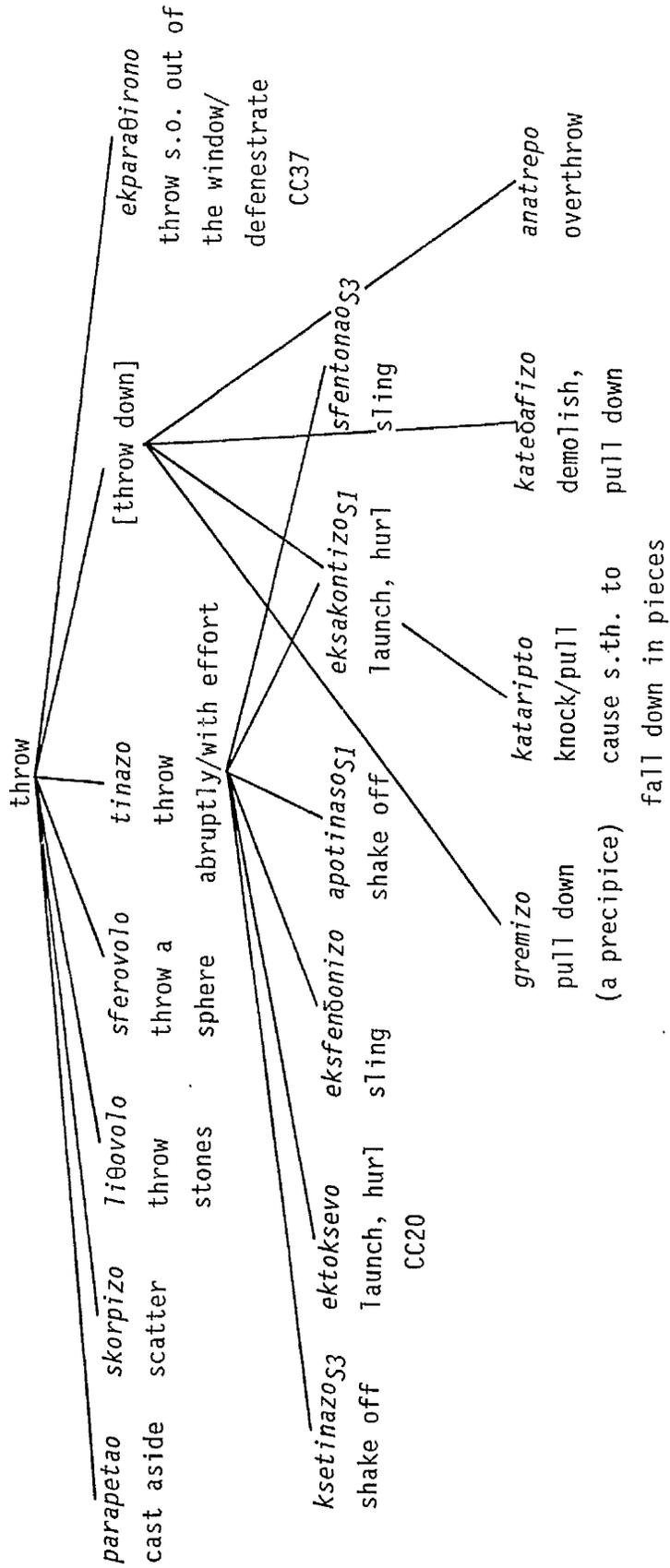


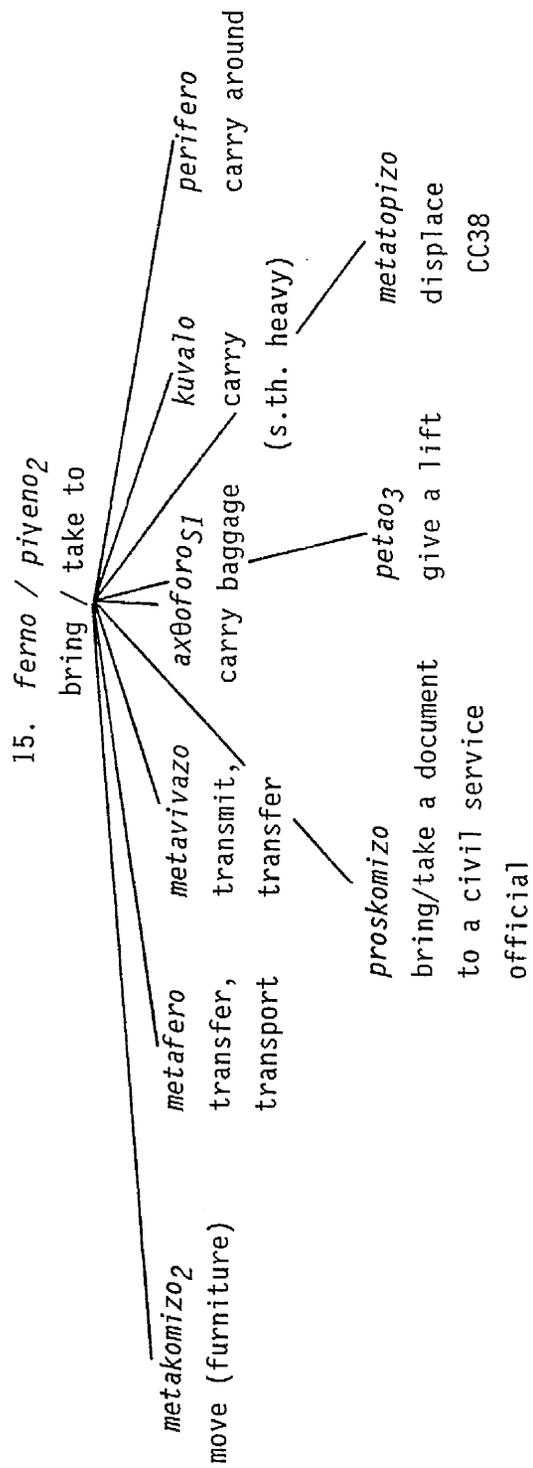


I3INTR [move slowly]  
 arɣoporo walk slowly, loiter CC4  
 vradiporo walk slowly CC4  
 arɣopatɔs3 pace/step slowly CC4  
 epivradiɲo1 slow down  
 arɣosalevo move slowly CC1  
 siyanoperpataoS3 walk slowly CC4  
 arɣokilao flow slowly CC26INTR

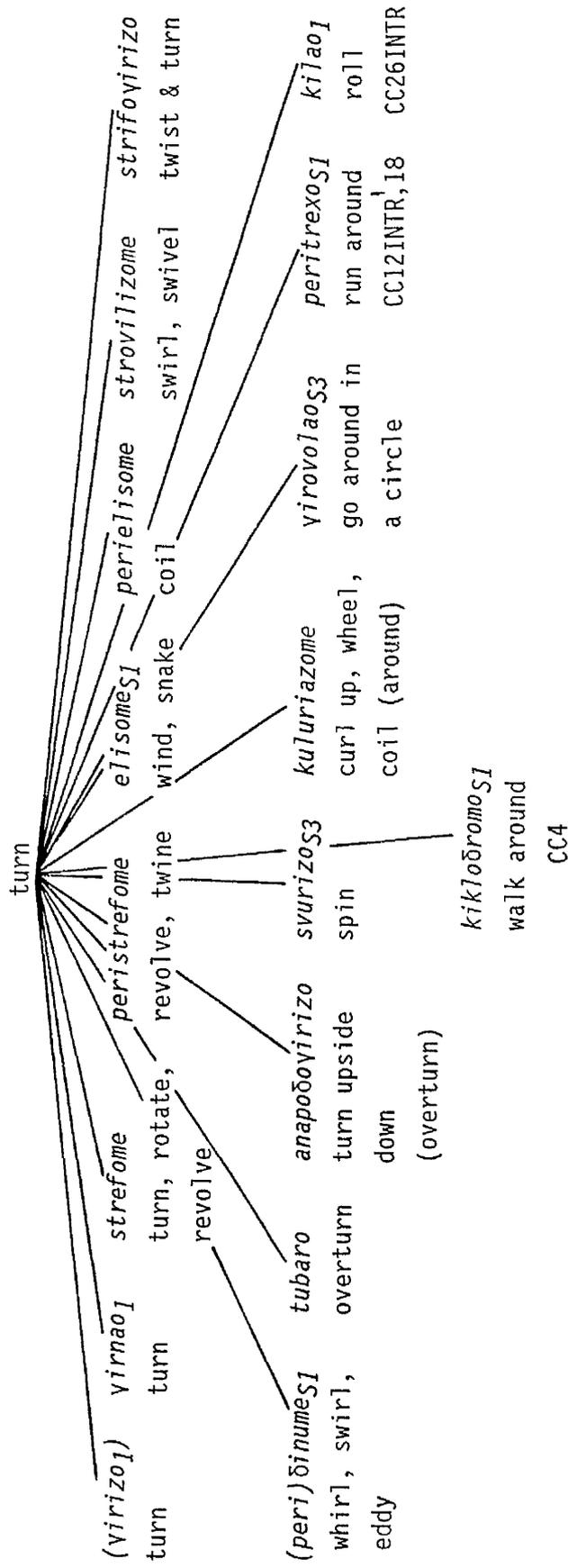
I3TR [cause something to move slowly]  
 epivradiɲo2 slow s.th. down  
 arɣokunaoS3 move s.th. slowly

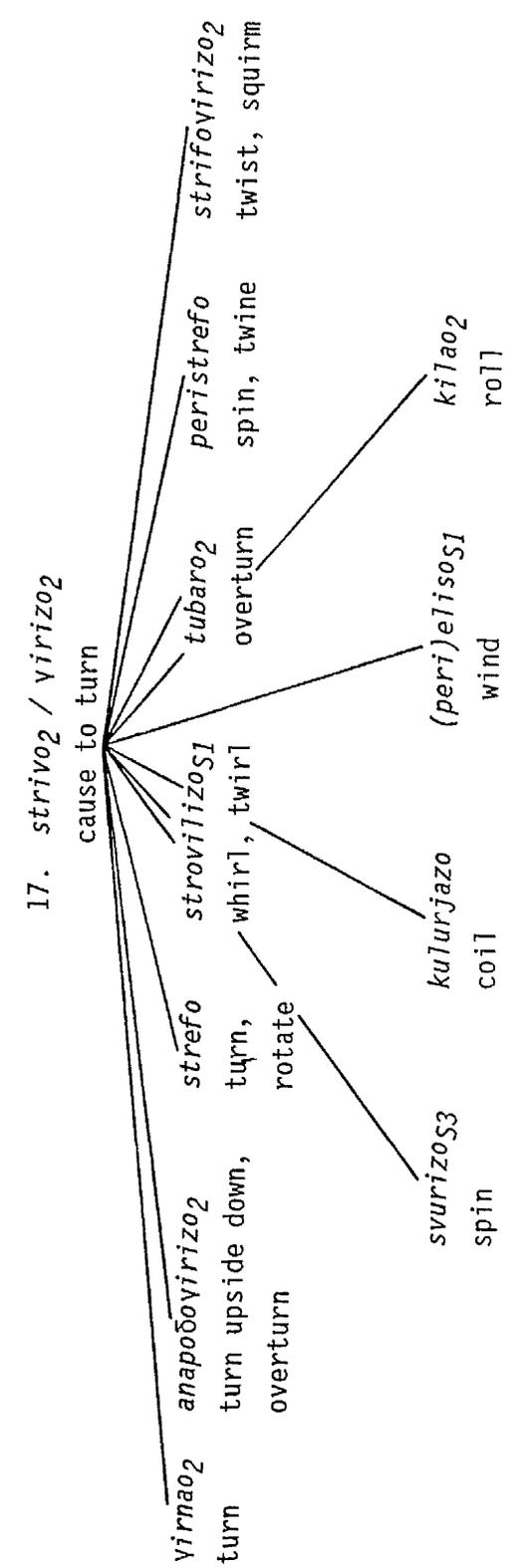
14. rixno / petao2

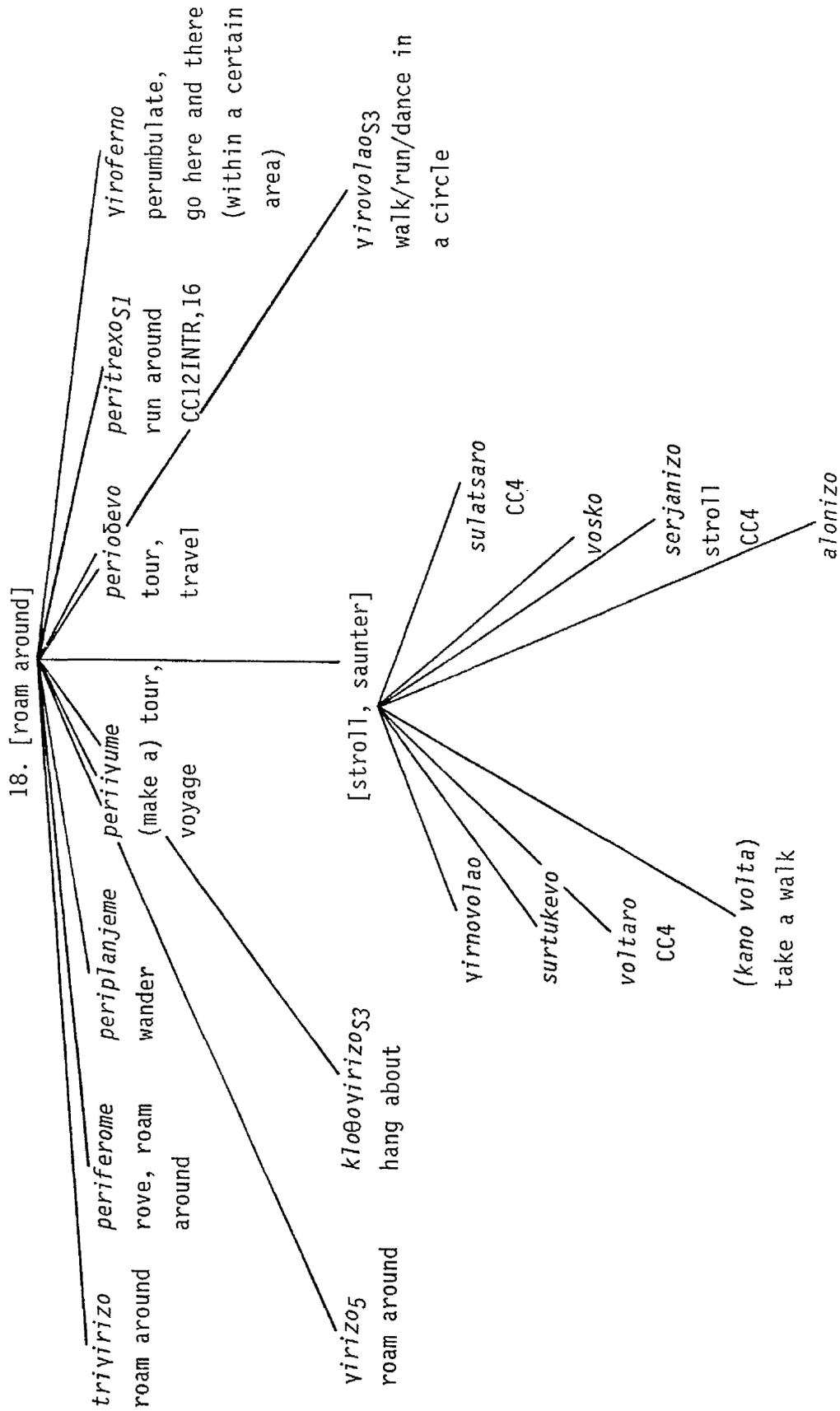




16. *strivoj* / *virizoj* [rotary motion]

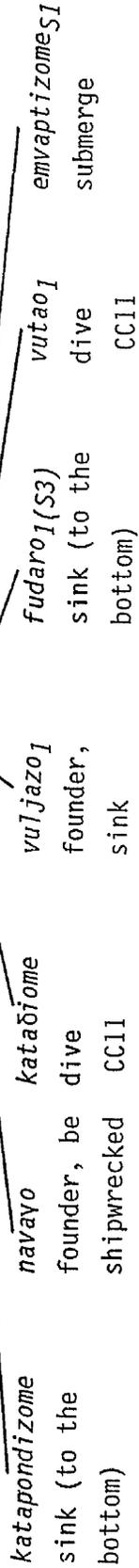






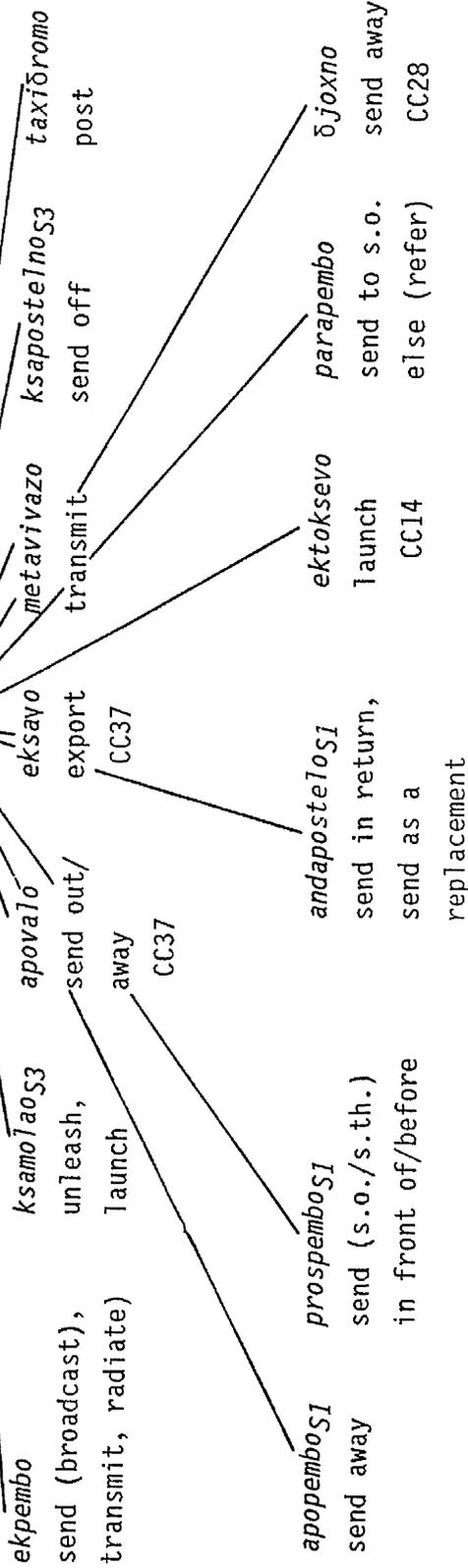
19. viθizome

sinkINTR



20. stelno

send



21. *beno*

get into, enter

*iserxomeS1*

enter

*bukaroS3*

rush into,  
burst in

*isxoro(S1)*

go (deeply)  
into

*(kopjazo)S3*

come (into)

*(di)isdio*

penetrate  
(slide in)

(with difficulty)

*isvalo*

invade

*isormosi*

rush into

*tripono*

burrow, go into  
NPLOC secretly/  
with difficulty

*xonome*

get into,  
get engulfed in

*sfinono, sfinonome*

get jammed in(to)

22. vyeno

go out/come out

*anaḍiomeṣ1*

emerge out of water,  
break water

CC6

*ekserxomeṣ1*

come out

*provalo*

come out of,  
emerge

*anavizo*

gush out

*kseportizo*

sneak out of  
the house

*ksebukaros3*

rush out

*ksemitizo*

'poke one's nose out  
of a place'

*ksetripono*

poke, come into  
sight unexpectedly

*petjeme1*

spring out of

*(kse)xinome*

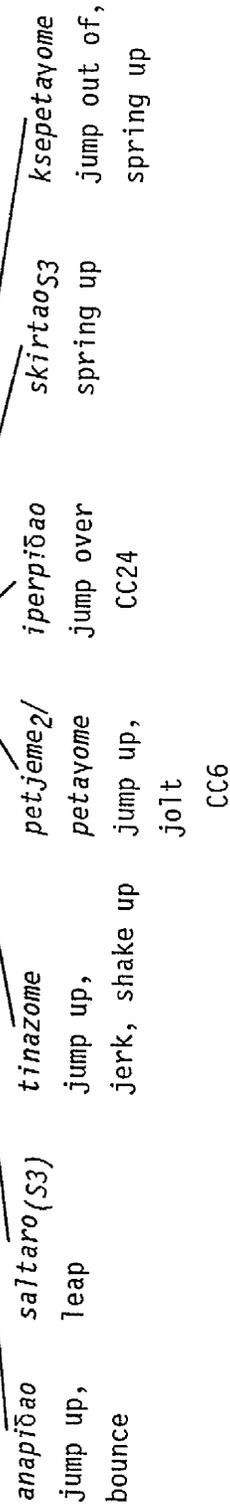
pour,  
rush out

*ksepetayome*

jump out of,  
appear suddenly out of

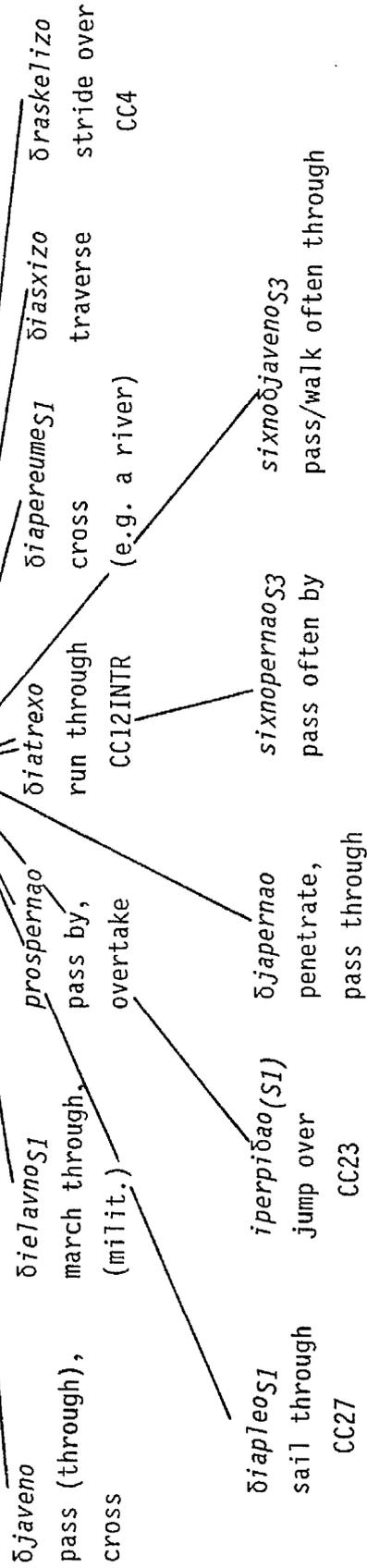
23. *pīdao*

Jump

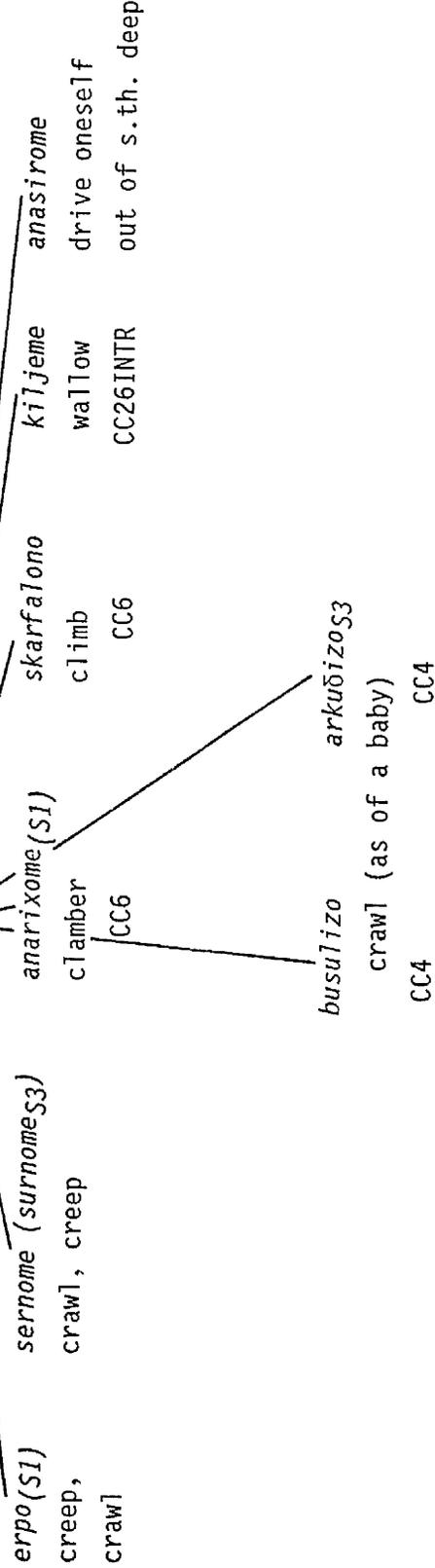


24. *pernao*

pass



25. [CL - object's main part or all limbs in contact with ground]



26INTR [roll, slide]

*kilao1* roll CC16  
*ki1jeme* roll about, wallow CC25  
*reo* roll (+liquid)  
*tsulao* slide, roll  
*katrakilao* roll down CC11  
*katolisbenoŋ1* roll/slide down (rocks/stones) CC11  
*vliŋtrao2* slide (aryokilao) flow slowly CC13INTR

26TR [roll, slide]

*kilao2* cause to roll  
*tsulao* cause to slide/roll  
*vliŋtrao2-(S3)* cause s.th. go into NP<sub>LOC</sub> smoothly & secretly CC38  
*anelkioŋ1* drag up CC8

27. (navigation terms)

<i>apopleo(S1)</i>	<i>epi</i>	<i>pleo</i>	<i>δi</i>	<i>nafsi</i>	<i>(aniyo panja)</i>	<i>anapoδizo</i>
set sail, sail away	float	sail	sail through	sail, navigate	sail off	sail backwards
CC5			CC24			CC36
<i>istioploosi</i>	<i>isti</i>	<i>ksenerizo</i>	<i>armenizo(S3)</i>	<i>plavi</i>	<i>parapleo</i>	<i>periploosi</i>
sail (by a sailing ship)	come to the surface of water	come to the surface of water	sail about	sail with the wind on the beam	sail near to	sail around
<i>poδizo</i>	<i>ortsaro(S3)</i>	<i>sa</i>	<i>fudaro1,2-(S3)</i>	<i>kaθe</i>	<i>kivernao</i>	<i>viraro</i>
tack (veer)	luff	sail off, away	sink (to the bottom)	drag a ship to the sea	command a ship	heave (anchor)
		CC5	CC19,33			CC8

28. [take away]

<i>apokomizosi</i>	<i>apomakrino</i>	<i>aposi</i>	<i>paramerizo2</i>	<i>apotravo</i>	<i>apoθo</i>	<i>(ōjoxno)</i>
carry away	remove, take away	draw out, withdraw	set apart, push aside	draw/drag away	repel, repulse	send away CC20

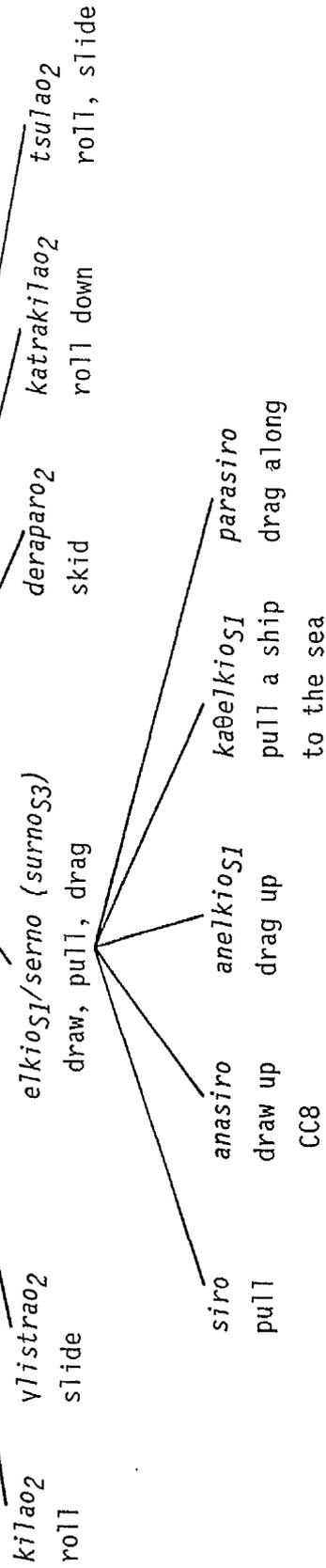
29. [bring/take back]

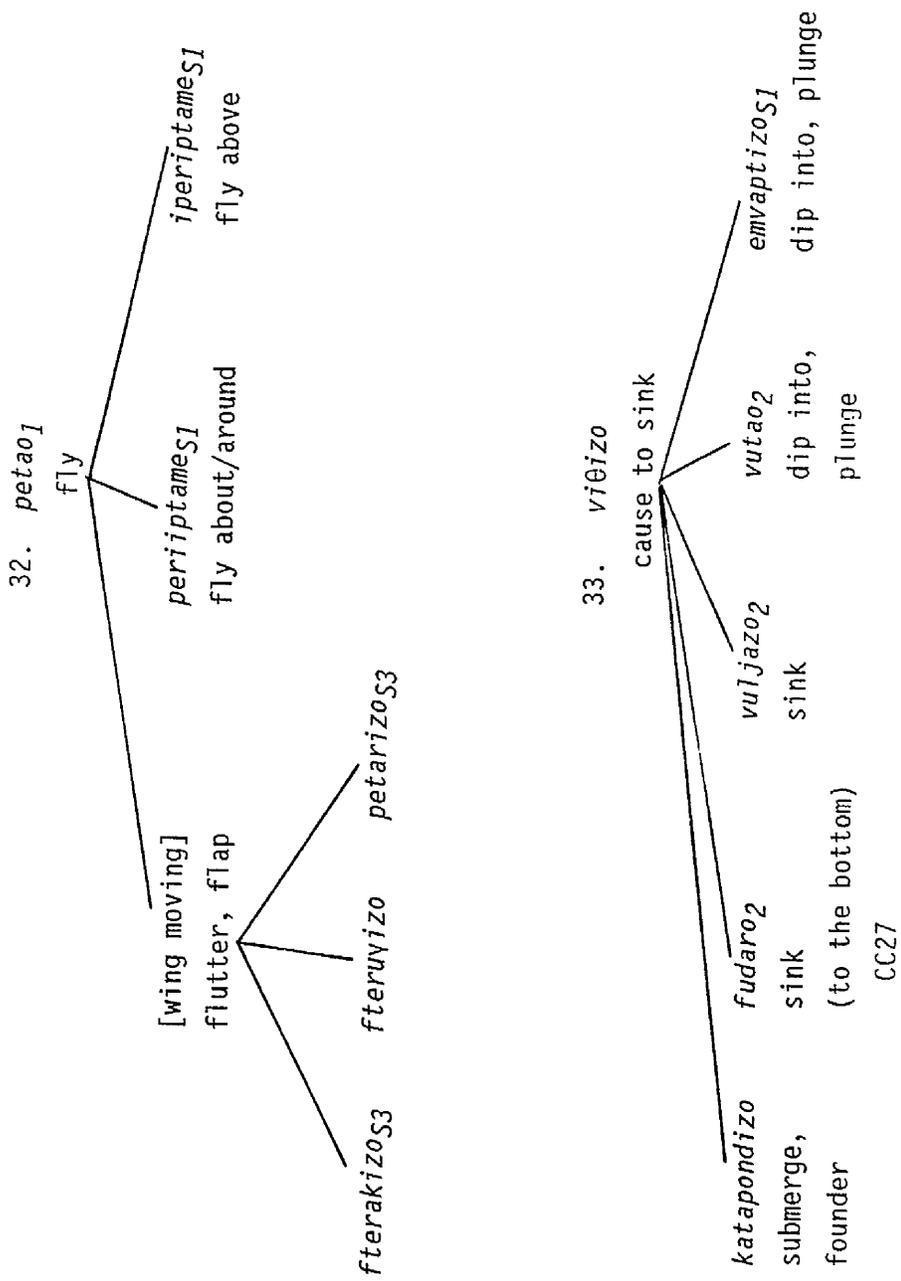
<i>epanafero</i>	<i>epistrefo2</i>	<i>virizo4</i>
bring/take back	return	return

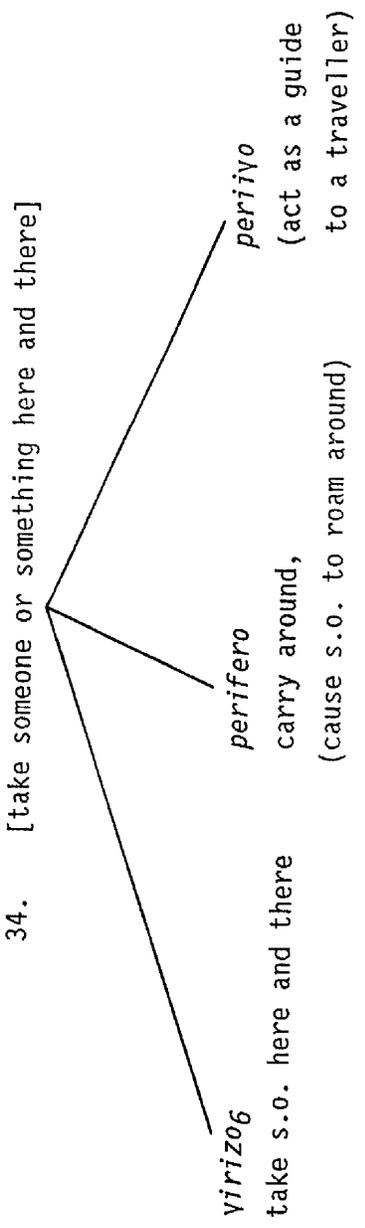
30. [go back]

<i>virizo3</i>	<i>epistrefo1</i>	<i>pisovirizo(S3)</i>	<i>(virizo piso)</i>
return	return	go back	go back, return

31. [cause something to change location -  
 object's main part or all limbs in contact with ground]







35. *proxoro*

advance

*προϋμε*  
advance

*(pro)elavno(SI)*  
advance (milit.)

*karkinovato*

walk/go very slowly (with difficulty),  
walk backwards

CC36

36. *opisθoxoro*

retreat, move backwards

*οπισθοδρομο(SI)*  
retreat, go backwards

*πισθοδρομος3*  
go back

*(opisθovato)*  
walk backwards

*pisopatos3*  
step back(wards)

*(ipoxoro)*  
retreat, draw back,  
recede, subside

*(piso)kolono3*  
walk/move/step  
backwards

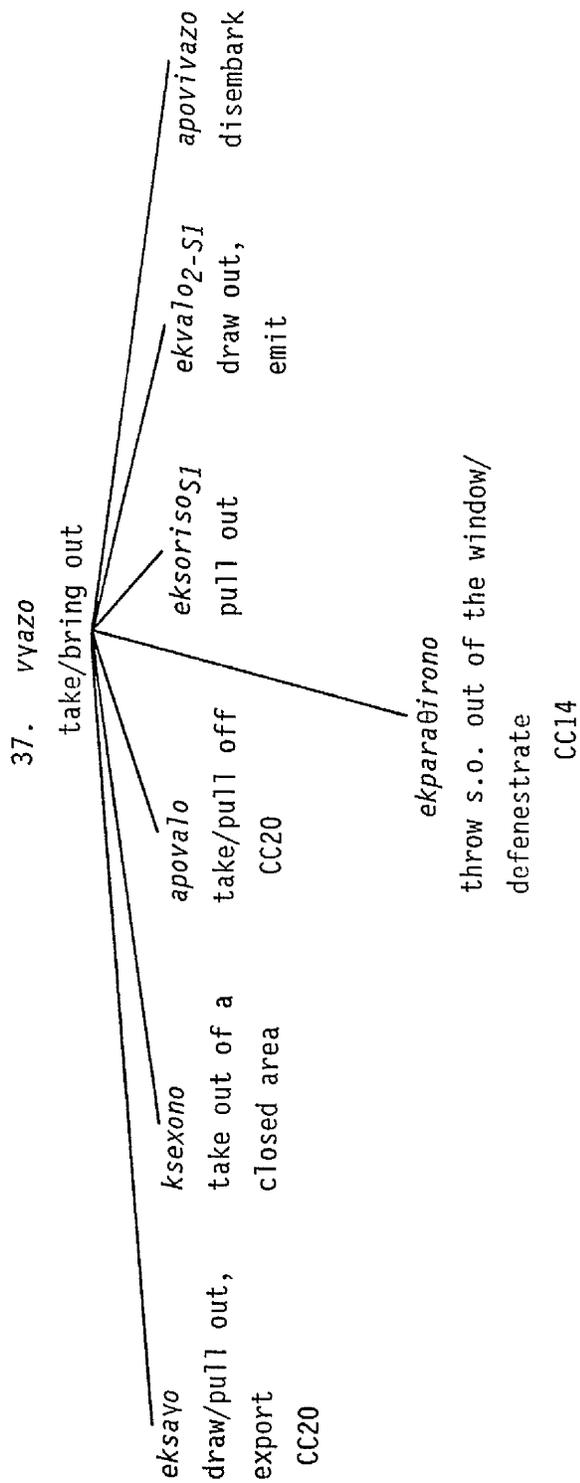
*αναποδizo*  
sail backwards

*karkinovato*  
walk/go very slowly,  
walk backwards (with difficulty)

CC27

CC4

CC35



38. *vazo*

put

*isavo*  
import,  
put in

*epanisavo*  
put in again

*viθizo*  
put in deeply,  
poke

*γλίστραοζ*  
cause to slide  
into, put into  
(smoothly and)  
secretly

CC26TR

*paremvalo*  
insert/put  
between

*topoθeto*  
place

*akubao*  
put on

*metatopizo*  
displace  
CC15

*bazo*  
put in,  
allow to  
come in

[stick in, jam]

*bizo, biyo (S3)*  
stick in

*xono*  
push in,  
stick in,  
poke

*sfinono*  
stick in, jam

*embivnioσ1*  
stick in, poke

CHANGE OF POSITION			STATIVE
PARTIAL MOTION NOT RESULTING IN DIFFERENT POSTURE	PARTIAL MOTION REGULAR/REPEATED	MOTION RESULTING IN DIFFERENT POSTURE/POINT OF SUPPORT	
<i>kiljeme</i> wallow	<i>talandevome</i> oscillate	<i>stinome</i> assume a standing position	<i>steko, stekome (ime stimenos)</i> stand
<i>kunjeme,</i> <i>kunao<sub>1</sub></i> move, stir	<i>palome</i> vibrate	<i>kaθome<sub>2</sub></i> sit down	<i>kaθome<sub>1</sub> (ime kaθismenos)</i> sit, be seated
<i>salevo</i> stir	<i>tremo</i> tremble	<i>ksaplonο<sub>2</sub></i> lie down	<i>ksaplonο<sub>1</sub></i> <i>(ime ksaplomenos)</i> lie, be lying down
<i>tradazome</i> shake, jerk	<i>kliθonizome</i> roll and pitch	<i>kremjeme</i> hang	<i>kremome (ime kremasmenos)</i> hang, be hanging
<i>anaðevome,</i> <i>anakatevome,</i> <i>(ana)tarasome</i> stir, churn, shake up	<i>siome</i> shake	<i>verno<sub>2</sub></i> lean on	<i>verno<sub>1</sub> (ime vermenos)</i> lean, be leaning
<i>anapιdao</i> jump up	<i>liknizome</i> swing, rock	<i>sikonome</i> stand up	<i>eorume, meteorizome (ime meteoro)</i> be dangling, hanging above
	<i>kimatizo</i> wave	<i>anakaθome</i> sit up	<i>epiπleo</i> float, be afloat
		<i>vonatizo<sub>1</sub></i> kneel	<i>ime akubismenos</i> be leaning on, be on
		<i>skivo</i> bend	

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