

Greek *-ízo* Derivatives: A Conceptual Analysis*

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Abstract

This paper deals with the semantic structures of the Event *-ízo* derivatives in Modern Greek, appearing in the syntactic frames NP_i __ NP and NP __ . The present analysis incorporates a version of Ray Jackendoff's conceptual semantics (1983, 1990, 1992). Special attention is paid to the semantic under-determination of word-formation rules. Semantic fields, conceptual functions, formation rules, and mechanisms/rules involved in *-ízo* derivation are presented. A principled account of various ambiguous structures is also provided. In the last part, the conceptual structures in *-ízo* derivation are finally laid down and the question of keeping these structures minimal while extending the semantic fields is once more addressed.

1 Introduction

This paper addresses some aspects of *-ízo* derivation in Modern Greek using the model of conceptual structures by Jackendoff (1983, 1990, 1992), whereby special attention is paid to the semantic under-determination of word-formation rules. For the analysis, 182 *-ízo* derivatives with a monomorphemic/simple base were considered (see appendix 1).¹ These were extracted from a total of 3506 *-ízo* verbs from the online version of the 'Reverse Index of Modern Greek' (Anastasiádhi-Simeonídhi 2002).² The selected 182 verbs had to conform to the embedding of the content of the base into a minimal conceptual structure and to appear inside a group of alternation classes (see below). Verbs with an irregular semantic connection to their base were not considered (the members of this category can be thought of as products of once-only-rules, approximately). Strong metaphorical and literary uses were also excluded.³ Note that only NP_i __ NP and NP __ frames are addressed in this paper, whereby an *-ízo* derivative appears as a causative active *a* variant or as a non-causative active/non-active *b* variant, respectively.⁴

2 Conceptual constituents and semantic fields

Jackendoff (1990: 22) argues that 'the essential units of conceptual structure are *conceptual constituents*, each of which belongs to one of a small set of major ontological categories... such as Thing, Event, State, Action, Place, Path, Property, and Amount.'⁵

* This paper is a revised and extended version of Charitonidis (2005: 43–62).

¹ These verbs are called 'synchronically related verbs' in Charitonidis (2005). I have chosen this suffix because of the variety of the bases to which it is attached (i.e. N, A, V, ADV). This is universally more promising since generalizations across categories can be made, especially in terms of the conceptual model at hand.

² The output list of the 3506 verbs was taken by entering the end string *-ίζω* in the search box at <http://www.komvos.edu.gr:8080/dictionaries/dictOnLine/DictOnLineRev.htm>, accessed June 6, 2007.

³ For a complete view of the exclusion criteria see Charitonidis (2005: 35–37).

⁴ This selection of syntactic frames has a concrete motivation: it is connected to the assignment of a derivative to a set of alternations (see footnote 9).

⁵ The definition of these conceptual constituents is made in Jackendoff (1983: 41–56).

These conceptual constituents define an argument structure at the conceptual level which is not identical to the syntactic argument structure. The former consists of conceptual constituents which *completely* define the content of a lexical unit in relation to cross-classifying semantic fields in conceptual structure (see below), whereas the latter refers to 'what makes a lexical head induce argument positions in syntactic structure' (LL).

This means, for example, that in a sentence like (1) the conceptual structure contains one Event with three arguments in the spatial field, i.e. the Things [JÓRGOS]⁶ (agent), [FAÍ] (reference object), and [ALÁTI] (theme), represented by the base of *alatízi*, whereas the argument structure in syntax contains the predicate *alatízi* with two arguments, i.e. *to faí* (theme) and *o Jórgos* (agent).

- (1) *O Jiórgos alatiízei to faí.*
 O Jórgos **alatízi** to faí.
 the Jórgos he.salts the meal
 'Jórgos **salts/is salting** the meal.'

-ízo derivatives show the following correspondence between (some of) the conceptual (or ontological) categories above and the lexical category of the base:

A Noun can express a Thing (see *aláti* in *alatízo*), an Event (see *laxtára* in *laxtarízo*), an Action (see *zóri* in *zorízo*), a Place (see *alóni* in *alonízo*), and a Property (see *sosialismós* or *sosialistikós* in *sosialízo*). An Adjective can only express a Property (see *prásinos* in *prasinízo*) and finally, an Adverb can express an Event (see *xarámi* in *xaramízo*) or a Place (see *adíkri* in *adikrízo*).

Before we proceed, two important issues must be mentioned. The first is the *reference of the base*. According to the *Referentiality Principle*, all phrases that express [TOKEN] conceptual constituents in the spatial field are referential unless there is a linguistic marking to the contrary (Jackendoff 1983: 94). If we extend this principle to verb morphology, the conceptual content of the base of a derivative is considered as referential, provided that it is embedded in a conceptual structure in the spatial field independent of external (syntactic) factors. Such factors would prescribe, for example, that the presence of an article is indispensable to settling the reference for a noun in Modern Greek. A linguistic marking that the conceptual content of the base is not referential may be, for example, the existence of a phrase in syntax with the same indexing (see rule of Argument Fusion in section 1.3).

The second issue is the *conceptual category of the base*. As Sasse (1993: 204) states, a list of ontological categories does not warrant the complete differentiation of the content of lexical units since the same unit can be thought of as an instantiation of another category of the same set, e.g. a Thing can be considered as Property. In my view, the embedding of the content of the base in a conceptual structure (e.g. as theme or goal) related to narrow and extended *semantic fields* (see below) can, for the most part, account for these ambiguous considerations, explaining how different verb readings are produced (see various ambiguous structures in section 1.4). I don't mean that the task of defining the conceptual category of the base is always easy, cf. the derivative *onidhízo* whose base *ónidhos* can be considered to denote an Event or a State. In cases like this, I have favoured an interpretation which conforms to the structural position of the conceptual constituent and the overall attested patterns (see section 1.4).

⁶ With the exception of whole Events or States, conceptual arguments are enclosed in brackets and indicated with capital letters.

The fixing of the above correspondence between lexical and ontological categories connected with *minimal lexical decomposition* (see the next sections) has major consequences for a *thematic relations* approach.

To understand this, let us first look at a well-known formulation of such an approach, i.e. the Thematic Relations Hypothesis by Jackendoff⁷:

(2) *Thematic Relations Hypothesis (TRH)*

In any semantic field of [EVENTS] and [STATES], the principal event-, state-, path-, and place-functions are a subset of those used for the analysis of spatial location and motion. Fields differ in only three possible ways:

- a. what sorts of entities may appear as theme;
- b. what sorts of entities may appear as reference objects;
- c. what kind of relation assumes the role played by location in the field of spatial expressions.

(Jackendoff, *Semantics and Cognition* 1983:188)

In the following, five cross-classifying semantic fields are presented, i.e. the fields of spatial, temporal, possessive, identificational, and circumstantial. For these, I sometimes use the term *narrow semantic fields* in order to distinguish them from the *extended semantic fields* or simply *semantic fields* (introduced by the author and indicated with capital letters) which are related to the *situational* context of the Event.⁸

⁷ This hypothesis is a version of Gruber's hypothesis (1965).

⁸ Situational fields represent a complex of features. I did not attempt to integrate them into the formalism, since they rather relate to the alternations component and the action frames in which the derivatives appear (see note 9). The starting point for their differentiation is the content of the base. For example, from the two main semantic elements which compose the meaning of the verb *stúbízo* 'pestle', i.e. INSTRUMENT & CONTACT BY IMPACT, the dominant semantic field is INSTRUMENT, since it immediately represents the content of the base *stúbos*. We can call the field CONTACT BY IMPACT, an accompanying semantic feature/field, since it figures only after the association of the base with a conceptual structure, i.e. a conceptual structure which contains a theme moving to a reference object, cf. the following sentence with its conceptual structure (LCS1):

- (i) *Η Μαρία στονμπίζει τα αμύγδαλα.*
 O María **stúbízi** ta amígdhala.
 the María she.pestles the almonds
 'María **pestles** the almonds.'

CAUSE([MARÍA], [GO([STÚBOS], [_{Path}TO[AMÍGDALA]])])

The clear-cut distinction between a dominant semantic field and an accompanying semantic field/feature is not always obvious, cf. the derivative *ramfízo*, whose base *rámfos* denotes a BODY PART and an INSTRUMENT or *xastukízo*, whose base *xastúki* only implies (but does not denote) a BODY PART or an INSTRUMENT. Cases like these are decided again according to the content of the base: the dominant semantic fields are BODY PART in *ramfízo* and CONTACT BY IMPACT WITH BODY PART in *xastukízo* since their bases *rámfos* and *xastúki* denote a Thing or Action, respectively.

A more difficult case is represented by verbs like *afionízo*, whose base *afióni* can be thought of to refer to the fields FOOD/DRINK, SUBSTANCE, or PSYCHOLOGICAL. Since *afióni* refers to an object, the FOOD/DRINK or SUBSTANCE option seems more adequate. But in a situational approach the regarding of this field as dominant can only partially account for the semantics of the derivative. In this context, a principled solution cannot be offered. Cases like this are accounted for by means of complex semantic fields, e.g. FOOD/DRINK & SUBSTANCE & PSYCHOLOGICAL for *afionízo* (whereby the field PSYCHOLOGICAL may be inferred from the other fields).

Let us try to summarize the process of accessing the semantic fields of *-ízo* derivatives:

- (a) The content of the base of the derivative sets the frame of a semantic field, (b) there is a dominant field related to the denotatum of the base of the derivative and an accompanying field or feature related to its whole conceptual structure, and (c) if the content of the base fails to represent the Event denoted by the derivative, then the content of the whole situation can be represented by a complex of semantic fields/features (the argumentation in this note is adopted from Charitonidis 2005: 80f).

1. The following sentence exemplifies an Event in the *spatial* field:

- (3) *Αλατίζει το φαί.*
Alatízi to faí.
 he.salts the meal

The *theme* in the above sentence is the Thing [ALÁTI], represented by *aláti*, the base of *alatízo*. It moves to another Thing, i.e. the *reference object* [FAÍ] 'meal,' which represents the role of *location*. In an alternations approach, where it is assumed that lexical units are primarily stored on the basis of the participation of an agent in coherent recurrent Events,⁹ the spatial field must be further specified, namely it has to be extended to the semantic field SUBSTANCE, which is the super-category of the entity denoted by the base and perhaps in addition to COOKING.

2. According to the Thematic Relations Hypothesis in the *temporal* field, Events and States appear as theme, Times appear as reference object, and Time of occurrence represents the role of location (Jackendoff 1983: 189), cf. the following sentence:

⁹ In Charitonidis (2005) nine alternations were asserted, i.e. *1a/b*: Active Causative / Active Auto, *2a/b*: Active Causative / Passive Auto, *3a/b*: Active Causative / Active Reflexive, *4a/b*: Active Causative / Passive Reflexive, *5a/b*: Active Causative / Active Reciprocal, *6a/b*: Active Causative / Passive Reciprocal, *7a/b*: Active Causative / Active Control, *8a/b*: Active Causative / Passive Control, and *9*: Passive Participle (with only one member). These alternations were defined according to discussions of relevant phenomena in Levin (1993) and Smith (1978). The final definition of the alternations was made according to the morphological system of the Modern Greek verb, in which active or non-active morphology can sometimes be used indifferently, cf. the verb forms *skorpízo* (active) and *skorpístika* (nonactive) with the same meaning (= "I was scattered"—alternations *1b* and *2b*, respectively). The basis of the analysis was ultimately the conceptual structures and functions introduced by Jackendoff (1983, 1990), further developed by the author.

In the following, I describe the semantics of these alternations in brief:

The *causative* variant (indicated with *a* above) involves an agent as instigator of an Event. The *auto* variant (see *1b* and *2b*) refers to Events where an agent may have initiated a process, but this process is conceptualized independently of him. The *reflexive* variant (see *3b* and *4b*) refers to an Event where the goal of the *control* action of an agent is himself or a part of himself. The *reciprocal* variant (see *5b* and *6b*) refers to Events in which each agent is the goal of the action of the other agent. In the *control* variant (see *7b* and *8b*), the agent is present during the whole Event, esp. he defines beginning, end, and perhaps even particular stages of the Event. The *passive participle* (alternation 9) denotes an established end state (see Charitonidis 2005: 7-24 for details).

To give an example of the action frames defined by (some of) these alternations, see how the senses of the verb *kapnízo* are differentiated in the following table:

kapnízo

Verbs	Senses	Alternation Classes	Semantic Fields	Conceptual Structures
<i>kapnízo1</i>	'smoke,' 'give off smoke'	<i>1*a/b_*</i> 9 (No alternations)	EMISSION/ ENDOGENOUS PRODUCT	LCS4
<i>kapnízo2</i>	'smoke,' 'cure'	<i>2a/b_8a/b_9</i>	COVERING	LCS1
<i>kapnízo3</i>	'smoke,' 'puff'	<i>8a/b_9</i>	EMISSION/ ENDOGENOUS PRODUCT	LCS4

*1*a/b_**9: *Causative Active/Auto Active_ *Passive Participle

2a/b_8a/b_9: Causative Active/Auto Passive_ Causative Active/Control Passive_ Passive Participle

8a/b_9: Causative Active/Control Passive_ Passive Participle

As becomes apparent from this table, three components co-operate, i.e. conceptual structures, alternation classes, and semantic fields, the most important component being the alternations component, which sets the *action frames* and ultimately differentiates the meanings (see also Charitonidis 2006).

- (4) *Οι συνομιλίες τερμάτισαν/τερματίστηκαν.*
 I sinomilíes **termátisan/termatístikan.**
 the talks ended/were ended
 'The talks **ended.**'

In (4), the Event [SINOMILÍES], represented by the subject-NP *i sinomilíes* 'the talks,' appears as theme and the time Event [TÉRMA], the content of the verb base *térma* 'end,' appears as the reference object and represents the role of location (in other words, 'the talks came to an end'). Likewise, in an alternations approach the temporal field to which the verb *termatízo* belongs, must be further specified as TIME & END according to the content of the base.

3. In the *possessive* field, Things appear as theme, Things appear as reference object, and being alienably possessed plays the role of location¹⁰ (Jackendoff 1983: 192), e.g. in (5) [KÉRDHOS], the content of the verb base, appears as Theme and [MARÍA] appears as reference object, simultaneously playing the role of location (in other words 'the gain went to María').

- (5) *Η Μαρία κέρδισε ένα αυτοκίνητο.*
 I María **kérdhise** éna aftikínito.
 the María she.won one car
 'Mary **won** a car.'

We do not have to assume a different extended field in order to accommodate the semantics of the Thing denoted by the base, since *kérdhos* 'gain' denotes possession anyway (for the fusion of the contents of *kérdhos* and *aftokínito* see the rule of Argument Fusion in section 1.3).

4. The *identificational* semantic field appears often among the examined *-ízo* derivatives: it is closely related to Events of change of state or ascription of properties. In the latter case, an adjective usually appears as the base of the derivative. In this field Things appear as theme, Thing types and Properties appear as reference objects, and being an instance of a category or having a property plays the role of location (Jackendoff 1983: 194),¹¹ cf. the following sentence:

- (6) *Ο ουρανός κοκκίνισε.*
 O uranós **kokínise.**
 the sky it.reddend
 'The sky **reddend.**'

In (6) *uranós* 'sky' represents the theme [URANÓS] and adjective *kókinos* 'red,' the base of the verb *kokínise*, represents the entity [KÓKINOS], which plays the role of location (in other words 'the sky turned red'). So that the verb can be embedded in a situational frame, the

¹⁰ Inalienable possession is, for example, the possession of a Thing like someone's own nose (see Jackendoff 1983:191 and the relevant references there). Jackendoff relates location not only to a single reference object, because he examines verbs like *give*, involving the participation of more than one individual, or transaction verbs like *buy*, for which both the location is thought of as a transfer of Things from one individual to another, e.g. in the case of the English verb *buy*, the course of a Thing (theme) going from one individual to another constitutes a location as a whole. For the syntactic frames NP_i __NP / NP__ and under a minimal lexical decomposition approach (see section 3.5), these structures are not relevant.

¹¹ As in the case of the possessive field, being an instance of a category or having a property can appear as a complex reference object, cf. the English sentences 'The coach changed *from a handsome young man into a pumpkin*' and 'Sally is *three inches shorter than Bill*' (see Jackendoff 1983: 194ff). Again, for the syntactic frames examined here (see note 10 above), these cases need not concern us.

semantic field must be further specified as COLOUR denoting the super-category of the Property denoted by the base.

5. In the *circumstantial* semantic field, Things appear as theme, Events and States appear as reference objects and 'x is a character of y' plays the role of spatial 'x is at y.' (Jackendoff 1983: 198). To exemplify this let us look at the following sentence:

- (7) *Ο Γιώργος λαχτάρισε τη Μαρία.*
 Ο **Jórgos laxtárise** ti **María.**
 the **Jórgos** he.gave.a.turn the **Maria**
 'Jórgos **gave** **María** **a turn.**'

In (7), Thing [MARÍA] appears as theme, Event [LAXTÁRA], the content of the base of the verb, appears as reference object, and '[MARÍA] is a character of [LAXTÁRA]' plays the role of spatial 'x is at y' (in other words, 'Jórgos has acted so that María was propelled into a frightened state'¹²). As in previous cases, we have to extend the semantic field of this verb defining it as PSYCHOLOGICAL in order to properly accommodate the content of the base.¹³

I have assumed that the psych-noun *laxtára* denotes an *Event* and not an *Action*. In this Event an animate Thing, cf. [MARÍA] in (7) is conceptualized as a kind of Actor (or *lower agent*) who can have control over the flow of the Action coming from another animate Thing.¹⁴ Important in this respect is that this kind of Actor cannot be omitted in the conceptual structure. If this were the case, *laxtára* would denote an Action and not an Event.¹⁵

The narrow semantic fields in 1-5 offer the basis for the licensing of the content of concrete lexical categories in concrete structural positions, e.g. in Modern Greek only the contents of Ns and As can appear as Properties in the identificational field. That is of course a language-specific preference.

On the other hand, the assertion of extended semantic fields defines situational information as an indispensable part of lexical meaning. This information is principally encoded in the base of the derivative which now has one more role to play in addition to denoting an argument in the conceptual structure.¹⁶

3 Functions and formation rules in the spatial field

In the previous section we have seen the minimal units which compose conceptual structures, i.e. a set of conceptual constituents. According to the TRH, different semantic fields are related by means of a set of event-, state-, and place-functions (conceptual primitives) which are principally used for the description of notions of place and location. Therefore, we must first see how these functions operate on conceptual constituents in the *spatial* field in order to gain an overview of the processes in all fields. We will concentrate on the Event structures of *-ízo* derivatives mainly using the definitions made by Jackendoff (1983, 1990).

¹² The conceptual status of this 'state' is regarded as an Event in which *Maria* is the main protagonist.

¹³ Jackendoff (1983: 198) argues that 'syntactically, circumstantial verbs always subcategorize a subordinate clause that expresses the reference [EVENT] or [STATE].' We have shown that in the PSYCHOLOGICAL field as an extension of the circumstantial field, this is not always the case.

¹⁴ Cf. the relevant argumentation for the *psych*-verbs in Charitonidis (2005: 16f).

¹⁵ See Charitonidis (2005: 69f) for a structural definition of Actions and Events.

¹⁶ The main issue which arises from the analysis is the inter-defining of narrow and extended semantic fields. Some more elaboration of the *narrow* semantic fields is needed, cf. the verb *magnítizo* for which the spatial field was assumed. In this case a candidate field were "TRANSFER OF ENERGY" and the like. I leave this issue for future research.

A function uses given information from a conceptual constituent and produces a result i.e. another conceptual constituent according to a *formation rule*. For example, a formation rule¹⁷ for Path is:

$$(8) \quad \text{Path} \rightarrow_{\text{Path}} \text{TO}[\text{THING/PLACE}]$$

Path function TO produces the meaning that an object (i.e. theme) moves to another object (i.e. the reference object). The formation rule in (8) says that TO operates on a Thing or Place (enclosed in brackets) in order to produce a Path (see the subscript on the left of the function). For example, in order to describe the Path constituent in the conceptual structure of the verb derivative *alatiízo*, the TO function must be used operating on a reference object such as [FAÍ] '[MEAL]'. In this way, the Thing/theme [ALÁTI] '[SALT]' (see content of the verb base), can be thought of as an entity traversing the produced Path. Therefore, the Path conceptual constituent of a sentence like (9) is decomposed as in (10).

$$(9) \quad \begin{array}{l} \text{O } \mu\acute{\alpha}\gamma\epsilon\iota\rho\alpha\varsigma \text{ } \alpha\lambda\alpha\tau\acute{\iota}\zeta\epsilon\iota \text{ } \tau\omicron \text{ } \phi\alpha\acute{\iota}. \\ \text{O } \acute{m}\acute{\alpha}\text{jiras } \mathbf{\acute{\alpha}l\acute{\alpha}t\acute{\iota}z\acute{\iota}} \text{ to } \acute{\phi}\acute{\alpha}\acute{\iota}. \\ \text{the cook he.salts the meal} \\ \text{'The cook } \mathbf{\textit{salts}} \text{ the meal.'} \end{array}$$

$$(10) \quad_{\text{Path}} \text{TO}[\text{FAÍ}]$$

As the main Event function, GO produces the meaning that something is happening. It takes two arguments: the first argument is the Thing in motion, i.e. the theme and the second argument is the Path that the theme traverses on. In other words, GO maps both arguments (Thing/theme and Path) into an Event. A formation rule for Event which includes the rule in (10) is the rule in (11).

$$(11) \quad \text{Event} \rightarrow_{\text{Event}} \text{GO}([\text{THING}], [_{\text{Path}} \text{TO}[\text{THING/PLACE}]])$$

Not taking the agent into account, the Event constituent of sentence (9) is decomposed as follows:

$$(12) \quad_{\text{Event}} \text{GO}([\text{ALÁTI}], [_{\text{Path}} \text{TO}[\text{FAÍ}]])$$

Another formation rule for Path is given in (13).

$$(13) \quad \text{Path} \rightarrow_{\text{Path}} \text{FROM} [\text{THING/PLACE}]$$

Path function FROM produces the meaning that an object (i.e. theme) moves from another object (i.e. the reference object). The rule in (13) says that FROM operates on a Thing or Place in order to produce a Path. The conceptual structure of a verb like *axnízo* has to contain this function that operates on a reference object like [KATSARÓLA] '[KETTLE]' in order to produce the Path that traverses the Thing/theme [AXNÓS] '[STEAM]', represented by the verb base, in the course of its motion. Therefore, the Path constituent of a sentence like (14) is decomposed as in (15).

$$(14) \quad \begin{array}{l} \text{H } \kappa\alpha\tau\sigma\alpha\rho\acute{\omicron}\lambda\alpha \text{ } \alpha\chi\nu\acute{\iota}\zeta\epsilon\iota. \\ \text{I } \kappa\alpha\tau\sigma\alpha\rho\acute{\omicron}\lambda\alpha \mathbf{\acute{\alpha}x\nu\acute{\iota}z\acute{\iota}}. \\ \text{the kettle it.steams} \\ \text{'The kettle } \mathbf{\textit{steams}} \text{'}$$

¹⁷ A list of basic formation rules is found in Jackendoff (1990: 43).

(15) $_{\text{Path}}\text{FROM} [\text{KATSARÓLA}]$

The conceptual structure in (16) describes the whole Event contained in sentence (14) by means of the function GO.

(16) $_{\text{Event}}\text{GO}([\text{AXNÓS}], [_{\text{Path}}\text{FROM} [\text{KATSARÓLA}]])$

The meaning that an object (i.e. theme) moves through another object (i.e. a reference object) is produced by the function VIA. The formation rule in (17) says that VIA operates on a Thing or Place in order to produce a Path. That means that in order to describe the relevant Path in sentence (18), the VIA function must operate on a reference object like [PISTÓLI] '[PISTOL],' represented by the base of the verb *pistolízo*, producing the Path which traverses an implied Thing/theme like [SFÉRA] '[BULLET]' in the course of its motion. Therefore, the Path constituent of (18) is decomposed as in (19).

(17) $\text{Path} \rightarrow _{\text{Path}}\text{VIA}[\text{THING/PLACE}]$

(18) *Ο σκοπευτής πιστολίζει ένα μπουκάλι.*
 O skopeftís **pistolízi** éna bukáli.
 the shooter he.shoots one bottle
 'The shooter **shoots** a bottle.'

(19) $\text{Path} \rightarrow _{\text{Path}}\text{VIA} [\text{PISTÓLI}]$

Similarly, in order to produce the Event reading contained in (18), we have to use the function GO. This time the conceptual structure which describes the main thematic configuration has a non-specified Thing as its theme and the Path constituent which describes details of this motion is subordinated as a *modifier*. (20) is the conceptual structure of (18), without involving the agent yet.¹⁸

(20) $_{\text{Event}}\text{GO}([\text{Thing-non specified-}], [_{\text{Path}}\text{TO}[_{\text{Thing}}\text{BUKÁLI}]])$
 $_{\text{Path}}\text{VIA} [_{\text{Thing}}\text{PISTÓLI}]$

The Path and Event formation rules seen so far do not explain how an *agent* can be incorporated into the conceptual structures of sentences (9) and (18). This is made by a formation rule described in (21) which uses the function CAUSE in order to map a Thing (the agent) and an Event into another Event.

(21) $\text{Event} \rightarrow _{\text{Event}}\text{CAUSE}([\text{THING}], [\text{EVENT}])$

(22) and (23) contain sentences (9) and (18) together with their complete conceptual structures. Indexing is used to describe the correspondence between syntactic and conceptual constituents (*i* is used for the "external" argument, i.e. the subject, and *j* is used for the object).

¹⁸ In (20), the constituent $_{\text{Path}}\text{VIA} [\text{PISTÓLI}]$ modifies the main constituent $[_{\text{Path}}\text{TO}[_{\text{Thing}}\text{BUKÁLI}]]$, producing a complex Path. Under the current approach, the instrument role is ascribed to the semantic field INSTRUMENT (see section 6 and note 8 of this paper for further details). In Jackendoff (1990: 142-145), the instrument role is mainly indicated by the function BY.

(22) *Ο μάγειρας αλατίζει το φαί.*

O májiras **alatízi** to faí.
the cook he.salts the meal
'The cook **salts** the meal.'

[_S [_{NP} O májiras]_i [_{VP} alatízi [_{NP} to faí]_j]]

{Event} CAUSE([{Thing} MÁJIRAS]_i, [_{Event} GO([ALÁTI], [_{Path} TO[FAÍ]_j])])

(23) *Ο σκοπευτής πιστολίζει το μπουκάλι.*

O skopeftís **pistolízi** to bukáli.
the shooter he.shoots.with.a.pistol the bottle
'The shooter **shoots** the bottle (**with a pistol**).'

[_S [_{NP} O skopeftís]_i [_{VP} pistolízi [_{NP} to bukáli]_j]]¹⁹

{Event} CAUSE([{Thing} SKOPEFTÍS]_i, [_{Event} GO([_{Thing}-non specified-], [_{Path} TO[_{Thing} BUKÁLI]_j])])

{Path} VIA[{Thing} PISTÓLI]

In this section we have seen that in the spatial field, the conceptual structures of *-ízo* derivatives related to Events involve the following formation rules:

- (24) a. Path → _{Path} TO[THING/PLACE]
b. Path → _{Path} FROM[THING/PLACE]
c. Path → _{Path} VIA[THING/PLACE]
d. Event → _{Event} GO([THING], [_{Path} TO[THING/PLACE]])
e. Event → _{Event} CAUSE([THING], [EVENT])

These rules must be extended in order to produce the conceptual structures of *-ízo* derivatives appearing in the other fields, e.g. adding a [PROPERTY] as first argument of GO in the identificational field (see (31a)), or an [EVENT] as argument of TO in the circumstantial field. A complete list of the conceptual structures produced is given in section 6 under (45).

4 Argument Fusion

We have so far accepted that the base of a derivative can represent an *incorporated* argument, e.g. the contents of the bases *aláti* and *axnós* are theme arguments in the conceptual structures of *alatízo* and *axnízo*, respectively. In these two verbs there is no conflict in the matching of conceptual and syntactic constituents: the incorporated argument simply received an additional role that was relevant in the conceptual structure (but not in the syntax, see section 2). However, there can be special mappings between conceptual and syntactic constituents, cf. the following sentence:

(25) *Η Μαρία κέρδισε ένα αυτοκίνητο.*

I María **kérdhise** éna aftokínito.
the María she.won one car
'María **won** a car.'

As regards to the conceptual structure of (25), [MARÍA] is the goal and the base of the derivative *kerdhízo*, i.e. *kérdhos*, represents the theme [KÉRDHOS].

¹⁹ From now on, I give the syntactic structure only for cases in which the correspondence of the conceptual to syntactic arguments needs clarification, cf. the cases of *Argument Fusion* in the next sections.

However, what happens if someone tries to integrate this information coming from the conceptual structure and the information coming from the syntax, i.e. that *kerdhízo* is a predicate with an internal argument (object)?

The syntactic and conceptual structure of sentence (25) is given in (26).

- (26) a. Syntactic structure
 [_S[_{NP}I María]_i [_{VP}kerdhíse [_{NP}éna aftokínito]_j]]
 b. Conceptual structure
 Event GO([KÉRDHOS]_j, [_{Path}TO[_{Thing}MARÍA]_i])

Index *j* indicates that the internal argument of the verb in the syntax and the incorporated argument of the verb in the conceptual structure correspond to each other. In order to integrate the information coming from the NP *éna aftokínito* in the conceptual structure of (26b) we cannot simply delete the information contained in the incorporated argument. This strategy would make *kerdhízo* a synonym of *apoktó* 'obtain.' One has ultimately to infer that *María* obtained a car and that this car was simultaneously a gain. In other words, *éna aftokínito* must have properties of a gain in order to be the object of the verb *kerdhízo*. This latter requirement leads to the conclusion that incorporated arguments can appear as *selectional restrictions* in the syntax (see Jackendoff 1990: 50ff).

Therefore, there must be a rule which computes the information coming from the incorporated argument in the conceptual structure and the internal argument in the argument structure/syntax. Jackendoff proposes the following rule:²⁰

(27) *Argument Fusion*

To form the conceptual structure for a syntactic phrase XP headed by a lexical item H:

- a. Into each indexed constituent in H's LCS,²¹ fuse the conceptual structure of that phrase YP that satisfies the co-indexed position in H's subcategorization feature.
 b. If H is a verb, fuse the conceptual structure of the subject into the constituent indexed *i* in H's LCS.

(Jackendoff, *Semantic Structures* 1990: 53)

The rule under (27a) suggests that in the case of (25), in order to form the conceptual structure for the VP *kerdhíse éna aftokínito* which is headed by the V *kerdhízo*, one has to fuse the conceptual structure of the NP *éna aftokínito* that satisfies the co-indexed position in V's subcategorization feature into the indexed constituent in V's LCS, i.e. [KÉRDHOS] (see the structures in (26)).

On the other hand, the rule under (27b) is required for the interpretation of sentences like (28).

- (28) *O Marcello ντελαλίζει τα νέα.*
 O Marcello **delalízi** ta néa.
 the Marcello he.announces.as.a.town.crier the news
 'Marcello **announces** the news (**as a town crier**).'

The corresponding syntactic and conceptual structures of (28) are given in (29).

²⁰ I use a simple formulation of this rule and not its final version, which is integrated in a theory of linking (see Jackendoff 1990: 264).

²¹ 'LCS' stands for 'Lexical Conceptual Structure.'

- (29) a. Syntactic structure
 $[_S [_{NP} O \text{ Marcello}]_i [_{VP} \text{delalízi} [_{NP} \text{ta néa}]_j]]$
 b. Conceptual structure
 $_{Event} CAUSE([_{Thing} \text{DELÁLIS}]_i, [GO([_{Thing} \text{TA NÉA}]_j, [_{Path} \text{TO}([_{Thing} \quad])])])^{22}$

In (29) index *i* indicates that the external syntactic argument *o Marcello* and the incorporated argument DELÁLIS in the conceptual structure correspond to each other. In order to integrate the information coming from the NP *o Marcello* into the conceptual structure, we cannot simply substitute the information DELÁLIS 'town crier' represented by the incorporated argument. In the best case, namely if the properties of the subject could be inferred, this would make *delalízo* a contextually dependent verb. As in the case of (25), the incorporated argument functions as a selectional restriction for the external argument, i.e. *Marcello* must have essential properties of a town crier or be a town crier himself. The rule under (27b) suggests that in order to form the conceptual structure for the V *delalízo*, one has to fuse the conceptual structure of the subject NP *o Marcello* into the constituent indexed *i* in V's LCS, i.e. [DELÁLIS] (see (29)).

Furthermore, the solving of *reference* issues by means of Argument Fusion also suggests that this rule plays an important role in the derivation process and the right interpretation of sentences containing a verb derivative. In section 1.1, I mentioned that a linguistic marking, indicating that the conceptual content of the base of a verb derivative is not referential, is the existence of a phrase in the syntax with the same indexing. As has been shown, the rule of Argument Fusion merges the content of the base and that of the co-indexed syntactic phrase, so that reference is established after the operation of the rule.

5 Ambiguous structures

So far I have presented the main formation rules generating the conceptual structure of the majority of the Event *-ízo* derivatives. In order to get a complete picture of the formation rules, we first have to discuss a case which Plag (1998, see 1999 as well) has pointed out concerning the semantics of English *-ize* derivatives.

Plag's analysis concerns 284 *-ize* derivatives which all are 20th century neologisms. The ambiguous conceptual structure in (30) summarizes his discussion.

- (30) LCS of *-ize* verbs (generalized) (Plag 1998: 234)

$$[[\quad]_{BASE} \text{-ize}]_V$$

$$\{ NP_i \quad \quad NP_{Theme}, NP_{Theme} \quad \quad , NP_i \quad \quad \}$$

$$CAUSE([\dots]_i, [GO ([_{Property,Thing} \quad]_{Theme/Base}; [TO [_{Property,Thing} \quad]_{Base/Theme}])]),$$

whereby the line contained in { } defines the syntactic environments involved. The broken line under CAUSE indicates the optionality of the agent.

The restricted semantic pattern in (30) can be accounted for by the following facts:

-ize was introduced in English in the 13th century following the structure of French and Latin words. From that time on *-ize* is almost entirely used to derive verbs from Romance vocabulary. In addition, English speakers respect this preference for the base when they produce neologisms although they may know nothing about its origin (see http://www.ling.upenn.edu/courses/Fall_1998/ling001/morphology2.html, accessed June 6,

²² The empty Thing slot of the Path argument in (29b) can be filled with the content of a NP, like *póli* 'town,' contained in a PP, like *stin póli* 'in the town.'

2007). Consequently, *-ize* derivatives are connected to a refined style of speech which for the most part involves *abstract* scientific and journalistic uses.²³

On the other hand, the continuous presence of Modern Greek *-ízo* from ancient times up to now is manifested in a variety of patterns: *-ízo* derivatives with a monomorphemic base relate in their majority to casual activities involving various thematic relations, especially in the spatial semantic field (cf. *alatízo*, *axnízo* and other MG formations), and they are not restricted to a particular base or style preference, i.e. verbs with bases of various origins can be produced connected to different styles (see the Main subclass inside alternation classes in Charitonidis 2005: 87–130). But let us now see how the pattern in (30) is applied to *-ízo* derivation.

In (31), the first argument of GO (theme) can be a Property or a Thing which is transferred onto another Property or Thing. What is special here is that "it is either the referent of the base that is transferred to the referent of the object or the other way round" (Plag 1998: 224). To make this clear let us look at the two readings of a MG sentence which suggest this pattern:

- (31) *O μηχανικός μαγνητίζει το υλικό.*
 O mixanikós **magnítizi** to ilikó.
 the engineer he.magnetizes the material
 'The engineer **magnetizes** the material.'
- a. CAUSE([_{Thing}MIXANIKÓS], [GO([_{Property}MAGNITIKÓS], [_{Path}TO[_{Thing}ILIKÓ]])])
 'The engineer induces magnetic properties in the material.'
- b. CAUSE([_{Thing}MIXANIKÓS], [GO([_{Thing}ILIKÓ], [_{Path}TO[_{Thing}MAGNÍTIS]])])
 'The engineer converts the material into a magnet.'

Magnítizo is a neologism/translation loan created on the pattern of French *magnétiser* (DCMG) and mainly a scientific term (cf. the discussion about the English *-ize* neologisms above). The lexical category of the base cannot be unequivocally defined. According to the two readings in (31) it can be both A *magnitikós* 'magnetic' (31a) and N *magnítis* 'magnet' (31b).

The possibility of a Property appearing as theme is to be thought of as an extension of Jackendoff's *TRH*: in the *identificational* field only do Things occupy this position (see section 2). The ambiguous pattern in (31) can be explained if we look at the conceptual category of the base: it can either be a Thing/Type or a Property, i.e. conceptual categories which are closely related.²⁴

Similar verbs are *kanonízo* and *pseftízo*.

Let us now consider other ambiguous patterns and their explanation.

The verb *aerízo* has the following structure:

- (32) a. CAUSE([_{Thing}.....], [GO([_{Thing}AÉRAS], [_{Path}TO[_{Thing}]])])
 b. CAUSE([_{Thing}.....], [GO([_{Thing}], [_{Path}TO[_{Thing}AÉRAS]])])

Sentence (33) can be interpreted in two ways: either *Jórgos* produces the effect that *aéras* 'air' comes to the clothes, e.g. opening a door (see (33a)), or he brings the clothes to *aéras* where under *aéras* is rather meant a place (see (33b)). In both cases the Event takes place in the

²³ See a list of 20th century neologisms in Plag (1998: 239-241).

²⁴ For further justifications of this structure see Charitonidis (2005: 65-68).

spatial field. The ambiguity seems to be due to a metonymy mechanism where the *contained* Thing can be thought as the *container*.

- (33) *Ο Γιώργος αερίζει τα ρούχα.*
 Ο Jórgos **aerízi** ta rúxa.
 the Jórgos he.airs the clothes
 'Jórgos **airs** the clothes.'

- a. CAUSE([_{Thing}JÓRGOS], [GO([_{Thing}AÉRAS], [_{Path}TO[_{Thing}RÚXA]])])
 b. CAUSE([_{Thing}JÓRGOS], [GO([_{Thing}RÚXA], [_{Path}TO[_{Thing}AÉRAS]])])

Akonízo is a slightly different case. Its structure is given in (34).

- (34) a. CAUSE([_{Thing}], [GO([_{Thing}AKÓNI], [_{Path}TO[_{Thing}]])])
 b. CAUSE([_{Thing}], [GO([_{Thing}], [_{Path}TO[_{Thing}AKÓNI]])])

Sentence (35) means that either *Jánis* moves a knife to a fixed grindstone/whet-stone (Gr. *akóni* the related base of the derivative), or that *Jánis* moves a (mechanic) grindstone/whetstone to a fixed knife (see (35a) and (35b), respectively). As in (33), both Events are in the spatial field and the conceptual categories in the theme and goal positions are the same, i.e. Things. In addition, the presence of the agent in (35) is obligatory, as opposed to (33). The ambiguity is due to *real-world* factors exclusively.

- (35) *Ο Γιάννης ακονίζει το μαχαίρι.*
 Ο Jánis **akonízi** to maxéri.
 the Jánis he.grinds/he.whets the knife
 'Jánis **grinds/whets** the knife.'

- a. CAUSE([_{Thing}JÁNIS], [GO([_{Thing}AKÓNI], [_{Path}TO[_{Thing}MAXÉRI]])])
 b. CAUSE([_{Thing}JÁNIS], [GO([_{Thing}MAXÉRI], [_{Path}TO[_{Thing}AKÓNI]])])

Similar verbs are *plevrízo1*, *plevrízo2* and *troxízo*.

The structure of the derivative *plimirízo* is given in (36).

- (36) a. CAUSE([_{Thing}.....], [GO([_{Thing}PLIMÍRA], [_{Path}TO[_{Thing}]])])
 b. CAUSE([_{Thing}.....], [GO([_{Thing}], [_{Path}TO[_{Thing/Type}PLIMÍRA]])])

In structure (36a) the base N *plimíra* has the meaning 'large amount of water' and in structure (36b) the meaning 'flood,' 'overflow.' These structures relate to the spatial and identificational field, respectively. The ambiguous structure is due to the fact that the base N is principally related to two different conceptualizations of the end state of the Event, i.e. that some place is covered with large amounts of water. On the other hand, these two options can be inferred in relation to the Thing involved in the two Events, cf. [IPÓJIO] in (37a) and [POTÁMI] in (37b).

- (37) a. *Το υπόγειο πλημμύρισε.*
 Το ipójio **plimírise**.
 the basement it.flooded
 'The basement **was flooded**.'
 GO([_{Thing}PLIMÍRA], [_{Path}TO[_{Thing}IPÓJIO]])
 b. *Το ποτάμι πλημμύρισε.*
 Το potámi **plimírise**.

the river it.overflowed
 'The river **overflowed its banks.**'

GO([_{Thing}POTÁMI], [_{Path}TO[_{Thing/Type}PLIMÍRA]])

The verb *asfalízo1* has the following structure:

- (38) a. CAUSE([_{Thing}], [GO([_{Thing}], [_{Path}TO[_{Property}ASFALÉS]])])
 b. CAUSE([_{Thing}], [GO([_{Thing}ASFÁLIA], [_{Path}TO[_{Thing}]])])

A *asfalés* 'secure' and N *asfália* 'lock' can appear as bases of the derivative, cf. (38a) and (38b), respectively. The former reading denotes that someone secures something in the identificational field and the latter reading denotes that someone attaches a Thing like [ASFÁLIA] '[LOCK]' to another Thing in the spatial field. (39) can have both readings. Its ambiguity seems to be due to a conceptual mechanism which relates a goal/Property to a theme/Thing.

- (39) *O γέροντας ασφαλίζει το υπόγειο.*
 O jérodas **asfalízi** to ipógio.
 the old.man he.secures/he.locks the cellar
 'The old man **secures/locks** the cellar.'

- a. CAUSE([_{Thing}JÉRODAS], [GO([_{Thing}IPÓJIO], [_{Path}TO[_{Property}ASFALÉS]])])
 b. CAUSE([_{Thing}JÉRODAS], [GO([_{Thing}ASFÁLIA], [_{Path}TO[_{Thing}IPÓJIO]])])

A slightly different case is *onidhízo* which has the following structure:

- (40) a. CAUSE([_{Thing}], [GO([_{Thing}], [_{Path}TO[_{Event}ÓNIDHOS]])])
 b. CAUSE([_{Thing}], [GO([_{Thing}ÓNIDHOS], [_{Path}TO[_{Thing}]])])

Base N *ónidhos* appears in (40a) with the meaning 'disgrace' and in (40b) with the meaning 'blame.' The former reading denotes that someone brings someone or something in disgrace in the circumstantial field and the second reading denotes that someone expresses a blame against someone or something in the spatial field. (41) can have both readings.

- (41) *Η αντιπολίτευση ονειδίζει τον πρωθυπουργό.*
 I adipolítefsi **onidhízi** ton prothipurgó.
 the opposition he.disgraces/he.blames the prime-minister
 'The opposition **disgraces/blames** the prime-minister.'

- a. CAUSE([_{Thing}ADIPOLÍTEFSI], [GO([_{Thing}PROTHIPURGÓS],
 [_{Path}TO[_{Event}ÓNIDHOS]])])
 b. CAUSE([_{Thing}ADIPOLÍTEFSI], [GO([_{Thing}ÓNIDHOS],
 [_{Path}TO[_{Thing}PROTHIPURGÓS]])])

In both readings, the main extended semantic field is CONFLICT. The ambiguity seems to come from the fact that in structure (41b) the semantic field VERBAL is added, which favours a spatial interpretation of the Event.²⁵

Similar verbs are *midhenízo2* and *kakízo*.

Real-world factors define the ambiguity of the verb *orkízo*. Its base *órkos* can mean 'oath' or 'swearing,' cf. the following structure:

²⁵ See Charitonidis (2005: 65-68) for the exact conceptual specification of verbal units as themes.

- (42) a. CAUSE([_{Thing}], [GO([_{Thing} ÓRKOS], [_{Path} TO[_{Thing}]])])
 b. CAUSE([_{Thing}], [GO([_{Thing}], [_{Path} TO[_{Event} ÓRKOS]])])

(43) can be interpreted in two ways: either *o prítanis* addresses an oath to the graduates (reading (43a)) or he brings the graduates to the Event of swearing to something (reading (43b)). In the first case the Event takes place in the spatial field and in the second case in the circumstantial field. The ambiguity seems to come from the fact that the focus on the initial or final state of the whole Event suggests the interpretation of the content of the base of *orkízo* as Thing or Event, respectively: The one focus point consists of someone addressing an oath to another person at the beginning of the Event (reading (43a)) and the other of the addressee swearing to something at the end of this Event (reading (43b)).

- (43) *Ο πρύτανης ορκίζει τους αποφοίτους.*

O prítanis **orkízi** tus apofítus.

the rector he.puts.under.oath the graduates

'The rector **puts** the graduates **under oath**.'

- a. CAUSE([_{Thing} PRÍTANIS], [GO([_{Thing} ÓRKOS], [_{Path} TO[_{Thing} APÓFITI]])])
 b. CAUSE([_{Thing} PRÍTANIS], [GO([_{Thing} APÓFITI], [_{Path} TO[_{Event} ÓRKOS]])])

So far we have examined ambiguity cases, in which the conceptual structures always contained a Path TO function. The last case involves the shift of the Path function which results in different readings, cf. the following two examples and their corresponding LCSs.

- (44) a. *Ο καταστηματάρχης δειγματίζει τα προϊόντα στη βιτρίνα.*

O katastimatárxis **dhigmatízi** ta proiódá sti vitrína.

the shopkeeper he.samples the products in-the shop.window

'The shopkeeper **puts** the products **as samples** in the shop window.'

[_S [_{NP} O katastimatárxis]_i [_{VP} dhigmatízi [_{NP} ta proiódá]_j²⁶ [_{PP} se [_{NP} ti vitrína]_k]]]

CAUSE([_{Thing} KATASTIMATÁRXIS]_i, [GO([_{Thing} DHÍGMA]_j,
 [_{Path} TO[_{Thing} VITRÍNA]_k]])])

- b. *Ο γεωπόνος δειγματίζει το βαμβάκι.*

O jeopónos **dhigmatízi** to vamváki.

the agronomist he.samples the cotton-plant

'The agronomist **takes a sample from** the cotton-plant.'

CAUSE([_{Thing} JEOPÓNOS], [GO([_{Thing} DHÍGMA],
 [_{Path} FROM[_{Thing} VAMVÁKI]])])

In both sentences, the base N *dhígma* of the verb *dhigmatízo* denotes a theme. The different readings are related to the fact that the LCS of (44a) contains a Path TO function and the LCS of (44b) contains a Path FROM function.

²⁶ Index *j* indicates that the conceptual content of the argument *proiódá* in the syntax and the conceptual content of the argument *dhígma* in the LCS are to be fused.

To summarize: In relation to *-ízo* derivatives, the following elements play an important conceptual role:

- a. The conceptual (ontological) category of the base, cf. *magnítizo*, *asfalízo*.
- b. The narrow semantic field, cf. *plimirízo*, *asfalízo*.
- c. The extended semantic field, cf. *onidhízo*.
- d. Metonymy mechanisms, cf. *aerízo*.
- e. Real-world factors, cf. *akonízo*.
- f. Situational factors related to different Path functions in the conceptual structure, cf. *dhigmatízo*.

There can be no evaluation of these factors, since the attested ambiguity phenomena must be tested on a larger corpus of data and with different suffixes in order to be validated. The corresponding conceptual structures are marginal, i.e. the only ones which appeared in the analysis. The main point to be made here is that the used conceptual model covers all these factors and sufficiently explains the ambiguities.

6 Conceptual structures in *-ízo* derivation (overview)

In the previous section, I completed the presentation of the basic LCSs involved in the Event *-ízo* derivatives. The list in (45) gives an overview of the discussion so far. It refers to the syntactic frame NP_i ___ NP and a verb in the causative active form. 'IA' stands for the incorporated argument. The broken line under CAUSE indicates that the agent can be absent in the *b* alternation variant.

- (45) LCS1: CAUSE([Thing-.....]_i, [GO([Thing-IA-], [Path TO[Thing]])])
 LCS2: CAUSE([Thing-.....]_j, [GO([Thing], [Path TO[Thing,Property,Event-IA-]])])
 LCS3: a. CAUSE([Thing-.....]_j, [GO([Thing,Property-IA-], [Path TO[Thing]])]) or
 b. CAUSE([Thing-.....]_j, [GO([Thing], [Path TO[Thing,Property,Event-IA-]])])
 LCS4: CAUSE([Thing-.....]_j, [GO([Thing-IA-], [FROM[Thing]])])
 LCS5: CAUSE([Thing]_j, [GO([Thing], [Path TO[Thing]])])
 VIA[Thing-IA-]
 LCS6: CAUSE([Thing-IA-]_i, [GO([Thing]_j, [Path TO[Thing]_k])])
 Syntactic frame: NP_i ___ NP_j {PP_k}

Sentences (46)-(52) exemplify the structures in (45). Some examples have already been used in the previous sections and are repeated here. All verbs are in the *causative active* form.

- (46) LCS1²⁷
Ο μάγειρας αλατίζει το φαγητό.
 O májiras **alátízi** to fajitó. (base: N *aláti* 'salt')
 the cook he.salts the meal
 'The cook **salts** the meal.'
 CAUSE([Thing-MÁJIRAS], [GO([Thing-ALÁTI], [Path TO[Thing-FAJITÓ]])])

²⁷ Note that this example refers to an LCS1 whereby an agent cannot be absent in the *b* alternation variant of the derivative. However, this is not always the case, cf. verbs like *progízo2* and *skonízo* in Charitonidis (2005). In LCS1 under (45) I have explicitly indicated that the agent is *optional*, i.e. absent in the *b* variant. As far as the content of the derivation base occupies the *theme* position in both cases, the optionality of the agent in the *b* variant is assumed at a more general level of conceptual structure.

- (47) LCS2
Η γυναίκα καθαρίζει το πουκάμισο.
 I jinéka **katharízi** to pukámiso. (base: A *katharós* A 'clean')
 the woman he.cleans the shir
 'The woman **cleans** the shirt.'
 CAUSE([Thing_{JINÉKA}], [GO([Thing_{PUKÁMISO}], [Path_{TO}[Property_{KATHARÓ}]]))])
- (48) LCS3a
Ο μηχανικός μαγνητίζει το υλικό.
 O mixanikós **magnítízi** to ilikó. (base: A *magnitikós* 'magnetic')
 the engineer he.magnetizes the material
 'The engineer **magnetizes** the material.' (he induces magnetic properties in the material)
 CAUSE([Thing_{MIXANIKÓS}], [GO([Property_{MAGNITIKÓS}], [Path_{TO}[Thing_{ILIKÓ}]]))])
- (49) LCS3b
Ο μηχανικός μαγνητίζει το υλικό.
 O mixanikós **magnítízi** to ilikó. (base: N *magnítis* 'magnet')
 the engineer he.magnetizes the material
 'The engineer **magnetizes** the material.' (he converts the material into a magnet)
 CAUSE([Thing_{MIXANIKÓS}], [GO([Thing_{ILIKÓ}], [Path_{TO}[Thing_{MAGNÍTIS}]]))])
- (50) LCS4
Ο Γιώργος καπνίζει ένα τσιγάρο.
 O Jórgos **kapnízo** éna tsigáro (base: N *kapnós* 'smoke')
 the Jórgos he.smokes one cigarette
 'Jórgos **smokes** a cigarette.'
 CAUSE([Thing_{JÓRGOS}], [GO([Thing_{KAPNÓS}], [FROM[Thing_{TSIGÁRO}]]))])
- (51) LCS5
Ο σκοπευτής πιστολίζει ένα μπουκάλι.
 O skopeftís **pistolízo** éna bukáli. (base: N *pistóli* 'pistol')
 the shot he.shoots one bottle
 'The shot **shoots** a bottle (**with a pistol**).'
 CAUSE([Thing_{SKOPEFTÍS}], [GO([Thing_{-non specified-}], [Path_{TO}[Thing_{BUKÁLI}]]))])
 VIA[Thing_{PISTÓLI}]
- (52) LCS6
Ο Marcello ντελαλίζει τα νέα στην πόλη.
 O Marcello **delalízo** ta néa stin póli. (base: N *delális* 'town crier')
 the Marcello he.announces.as.a.town.crier the news in-the town
 'Marcello **announces** the news in the town (**as a town crier**).'
 CAUSE([Thing_{DELÁLIS}]), [GO([Thing_{NÉA}], [Path_{TO}[Thing_{PÓLI}]]))])

Two parameters are crucial for the differentiation of the structures in (45), i.e. the position of the content of the incorporated argument in each conceptual structure and the Path function used.

Furthermore, in the LCSs in (45), the main thematic Event appears in a *minimal structure*. In this way, structural similarities or differences between lexical units are pointed out more strikingly. The most important consequence of such an approach is that extended semantic

fields are needed in order to compensate the reduction of the conceptual structures. Let us look at an example:

Jackendoff (1990: 142-145) defines the *instrument* role structurally by means of the *action tier*,²⁸ e.g. the conceptual structure of (53) should contain the two action tiers in (54), which denote that the actor acts on the instrument and the instrument acts on the patient, respectively.

(53) *Η γριά ραβδίζει τα κλαδιά.*
 I griá **ravdhízi** ta kladhiá.
 the old.woman she.hits.with.a.stick the twigs
 'The old woman **hits** the twigs **with a stick**.'

(54) a. AFF⁻([GRIÁ], [RAVDHÍ])
 b. AFF⁻([RAVDHÍ], [KLADHIÁ])

If we extend the spatial semantic field to the situational field INSTRUMENT, there is no need for the structural definition in (54). LCS1 must be only used in order to define that the incorporated argument [RAVDHÍ] '[STICK]' moves to another entity, leaving the flow of the action described in (54a) to be inferred from the INSTRUMENT field. On top of this, the use of the same extended field makes the description of the opposite case, in which the instrument is the goal of the action, simpler, cf. (55).

(55) *Η εργάτρια μασουρίζει το νήμα.*
 I ergátria **masurízi** to níma.
 the factory-girl she.winds.onto.a.reel the thread
 'The factory-girl **winds** the thread **onto a reel**.'

(55) denotes a situation in which an agent uses both hands. In the one hand there is a thread and in the other a reel. If we follow the action tier solution like that in (54), we should have to invent a structure containing two action pairs, i.e. the pairs in (56) and (57), in order to describe two simultaneous movements.

²⁸ The six presented LCSs for the *-ízo* verbs refer to the *thematic tier*, the conceptual part dealing with motion and location. Jackendoff (1990, 125ff) introduces an additional level of conceptual structure, i.e. the *action tier*, dealing with Actor-Patient relations. He uses the function *AFF* ("affect") to denote these relations. This function has two *optional* arguments. The first argument is the "Actor" and the second argument is the "Patient" or the "affected entity," e.g. the action tier of (i) is (ii).

(i) *Ο άγιος ακοντίζει το φίδι.*
 O ágios **akodízi** to fídhí.
 'The saint **hits** the sneak **with a javelin**.'

(ii) AFF([ÁJIOS], [FÍDHI]),

where [ÁJIOS] is the Actor and [FÍDHI] is the Patient.

The *AFF* function is elaborated, among others, into *AFF⁺* which indicates an Event in favour of the Patient and *AFF⁻* which indicates an Event against the Patient (as in the sentence above).

The action tier in (ii) is an example of *AFF⁻*. Sentence (iii) contains *AFF⁺* (see iv).

(iii) *Ο Γιόργος κέρδισε ένα αυτοκίνητο.*
 O Jórgos **kérdhise** éna aftokínito.
 'Jórgos **won** a car.'

(iv) *AFF⁺*([], [JÓRGOS])

The Actor or the Patient slot can be empty, cf. (iv) with an empty actor slot.

- (56) a. AFF⁻([ERGÁTRIA], [MASÚRI])
 b. AFF⁻([MASÚRI], [NÍMA])
- (57) a. AFF⁻([ERGÁTRIA], [NÍMA])
 b. AFF⁻([NÍMA], [MASÚRI])

LCS2 gives a more natural solution: it describes that the theme [NÍMA] comes to the incorporated argument [MASÚRI], which is the main thematic Event. As in (53), the field INSTRUMENT takes over details of the action which are not *visible* in syntax.²⁹

In a similar way, the structural complexity and plurality of functions in verbs of touching, pure contact, attachment, and others (see Jackendoff 1990) are reduced by means of extended (= situational) semantic fields like CONTACT, ATTACHMENT, etc., which now mark the conceptual arguments without further decomposition.³⁰

There is thus a counter-balancing of conceptual structures and semantic/situational fields: the richer the fields the poorer the structures and the other way around.

The collapsing of the conceptual categories *Thing* and *Place* into a single *Thing* category as argument of the functions TO and FROM, as well as the use of TO and FROM as general direction functions, are two further structural reductions related to the minimal conceptual structure approach adopted here, cf. (52) where [PÓLI] is, strictly speaking, a Place and not a Thing and (46) where [ALÁTI] comes *on* the meal suggesting the function ON instead of TO in the Path constituent. As mentioned above, the aim of this tactic is to isolate the core thematic Event by focusing on essential similarities or differences between lexical items.

In conclusion, the set of conceptual structures appearing in *-ízo* derivation show that there is no restricted pattern in this domain, in that the content of the derivation base can assume a variety of semantic roles. Therefore, I cannot give any justice to the claim that morphological productivity is always based on a semantically restricted and homogeneous pattern connected with a limited range of choices which a native speaker makes when producing new words (cf. van Marle 1988, Plag 1998, 1999).³¹

7 Conclusion

By taking for granted that the derivational process is based on overt morphological processes, the content of the derivation base receives a prominent status: the derivation base points to a semantic/situational field and this field should not be ignored or decomposed into a detailed conceptual structure. By means of this strategy, many ambiguities in the meaning of the *-ízo* derivatives can be explained (see section 5).

²⁹ For further justifications of the INSTRUMENT field see Charitonidis (2005: 80-82).

³⁰ Cf. the treatment of *kapnízo* in note 9.

³¹ For example, van Marle (1988) assumes that the decrease in productivity of the Dutch suffix *-lijk* (with the basic meaning 'having the nature of,' 'possible') is ascribed to a basic tripartite semantics of the suffix, together with other factors such as the rise of 'modal' features and metaphorical readings in the respective adjectives. An important note: the structures in (45) represent a group of basic semantic patterns attested among 182 'synchronically related' *-ízo* derivatives (cf. note 1). Opaque derivatives and derivatives as products of once-only-rules or metaphorical shifts were not taken into account. Given the fact that all the latter constitute a significant part of the verbs examined (101 verbs out of a total of 283), we get a much more heterogeneous set of forms—a fact which strengthens our claims. In addition, the structures in (45) were attested both in new and old derivation: as concerns the conceptual structure of the verbs in the *new derivation* (the verbs of this class are called 'Main verbs' in Charitonidis 2005), in a total of 50 derivatives, LCS1 was attested in 22 derivatives, LCS2 in 18 derivatives, LCS3 in five derivatives, LCS4 in two derivatives, LCS5 in one derivative, and LCS6 in two derivatives. As concerns the conceptual structure of the verbs in the *old derivation*, in a total of 112 derivatives, LCS1 was attested in 44 derivatives, LCS2 in 55 derivatives, LCS3 in six derivatives, LCS4 in six derivatives, LCS5 in one derivative, and LCS6 in one derivative (see Charitonidis 2005: 80-84).

Further significant points made in this paper were the co-operation of narrow and extended semantic fields (the latter always related to the situational content of the derivation base—see section 2) and the disconnection of productivity from a limited and homogenous semantic pattern (see section 6).

It remains to be seen how this approach can be further developed through its application to Greek derivatives with various suffixes or other affixed elements.

Abbreviations

A	Adjective
AF	Argument Fusion
AFF ⁻	Negative Affect
AFF ⁺	Positive Affect
DCMG	Dictionary of Common Modern Greek (<i>Leksikó tis Kinís Neoelinikís</i>)
H	Head
IA	Incorporated Argument
LCS	Lexical Conceptual Structure
LL	Lexicon of Linguistics (http://www2.let.uu.nl/UiL-OTS/Lexicon/ , accessed June 6, 2007)
MG	Modern Greek
N	Noun
NP	Noun Phrase
TRH	Thematic Relations Hypothesis
VtV	Verb to Verb (morphological subclass)

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Appendix 1: 182 synchronically related verbs in *-ízo* appearing inside alternation classes

<i>adhinatízo</i>	<i>fronimatízo</i>	<i>mavrízo</i>	<i>provlimatízo</i>	<i>svurízo</i>
<i>adikrízo</i>	<i>furkízo</i>	<i>meremetízo</i>	<i>psalidhízo</i>	<i>sximatízo1</i>
<i>aerízo</i>	<i>furnízo</i>	<i>merízo</i>	<i>pseftízo</i>	<i>sximatízo2</i>
<i>afionízo</i>	<i>gremízo2</i>	<i>midhenízo1</i>	<i>psifízo</i>	<i>tagízo</i>
<i>afρίζo</i>	<i>ikízo</i>	<i>midhenízo2</i>	<i>psithirízo</i>	<i>telonízo</i>
<i>akonízo</i>	<i>ionízo(iodízo)</i>	<i>mistrízo</i>	<i>psonízo</i>	<i>temaxízo</i>
<i>alatízo</i>	<i>ipnotízo</i>	<i>molopízo</i>	<i>ravdhízo</i>	<i>termatízo1</i>
<i>alonízo</i>	<i>kalafatízo</i>	<i>murmurízo</i>	<i>ripízo</i>	<i>thiafízo</i>
<i>anthízo</i>	<i>kanonízo</i>	<i>nostimízo</i>	<i>rithmízo1</i>	<i>thorakízo</i>
<i>armirízo</i>	<i>kapnízo2</i>	<i>onidhízo</i>	<i>rokanízo1</i>	<i>thrimatízo</i>
<i>aromatízo</i>	<i>kapnízo3</i>	<i>onomatízo</i>	<i>sapunízo</i>	<i>tiganízo</i>
<i>arxízo</i>	<i>kapsalízo</i>	<i>oplízo</i>	<i>satirízo</i>	<i>tixízo</i>
<i>asfalízo1</i>	<i>karpízo</i>	<i>orízo1</i>	<i>sekletízo</i>	<i>tonízo1</i>
<i>asfalízo2</i>	<i>katharízo</i>	<i>orjízo</i>	<i>serjanízo</i>	<i>torpilízo</i>
<i>asprízo1</i>	<i>kazadízo</i>	<i>orkízo</i>	<i>sfaliarízo</i>	<i>travmatízo</i>
<i>asprízo2</i>	<i>kedrízo</i>	<i>ovelízo</i>	<i>sfrajízo</i>	<i>troxízo</i>
<i>asximízo</i>	<i>kerdhízo1</i>	<i>panijirízo</i>	<i>sfugarízo</i>	<i>tsiknízo</i>
<i>axnízo2</i>	<i>kimatízo</i>	<i>papagalízo</i>	<i>silavízo</i>	<i>tufekízo</i>
<i>batirízo</i>	<i>kitrinízo</i>	<i>paspalízo</i>	<i>sinetízo</i>	<i>vasanízo1</i>
<i>blavízo</i>	<i>kokinízo1</i>	<i>patsízo</i>	<i>sinexízo</i>	<i>vithízo</i>
<i>delalízo</i>	<i>kopanízo</i>	<i>peanízo</i>	<i>skonízo</i>	<i>votanízo</i>
<i>dhigmatízo</i>	<i>koskinízo</i>	<i>pexnidhízo</i>	<i>skorpízo1</i>	<i>vurtsízo</i>
<i>dhraskelízo</i>	<i>krimatízo</i>	<i>pikrízo</i>	<i>skorpízo2</i>	<i>xalalízo</i>
<i>dhrosízo1</i>	<i>ksilízo</i>	<i>pipilízo</i>	<i>skorpízo4</i>	<i>xaramízo</i>
<i>dhrosízo2</i>	<i>ksinízo1</i>	<i>pitsilízo</i>	<i>skupízo1</i>	<i>xastukízo</i>
<i>evnuxízo</i>	<i>ksinízo2</i>	<i>planízo</i>	<i>sofronízo</i>	<i>xeretízo1</i>
<i>exmalotízo</i>	<i>ksirafízo</i>	<i>plevrízo1</i>	<i>stalízo</i>	<i>xrimatízo1</i>
<i>fanatízo</i>	<i>kutsulízo</i>	<i>plevrízo2</i>	<i>stavlízo</i>	<i>xrisízo</i>
<i>fenakízo</i>	<i>lanarízo</i>	<i>plimirízo</i>	<i>stigma-tízo</i>	<i>xromatízo</i>
<i>fevgatízo</i>	<i>laxtarízo</i>	<i>plumízo</i>	<i>stiximatízo</i>	<i>xtenízo</i>
<i>filakízo</i>	<i>lianízo1</i>	<i>plutízo1</i>	<i>stixízo2</i>	<i>zalfízo</i>
<i>fortízo</i>	<i>lonxízo</i>	<i>podízo</i>	<i>stolízo2</i>	<i>zijízo1</i>
<i>fotízo</i>	<i>luludhízo</i>	<i>pomatízo</i>	<i>strovilízo1</i>	<i>zografízo</i>
<i>foverízo</i>	<i>madrízo</i>	<i>prasinízo1</i>	<i>strovilízo2</i>	<i>zorízo</i>
<i>fovízo</i>	<i>magnitízo</i>	<i>prasinízo2</i>	<i>stubízo</i>	
<i>friganízo</i>	<i>makarízo</i>	<i>prionízo</i>	<i>suvlízo</i>	
<i>frodízo</i>	<i>mastízo</i>	<i>progízo2</i>	<i>svarnízo</i>	

Appendix 2: List of *-ízo* verbs discussed

Note: form and meaning of the (related) base is given in Modern Greek! '~' next to the base indicates the immediate derivative (see Verb-to-Verb (VtV) subclass in Charitonidis (2005: 33f).

Verbs in <i>-ízo</i>		(Related) Base		
adikrízo	'see', 'meet'	adíkri	ADV	'facing', 'vis-à-vis'
aerízo	'air'	aéras	N	'air'
afionízo	'give sb opium'	afióni	N	'opium'
akodízo	'hit with a javelin'	akódio	N	'javelin'
akonízo	'grind', 'whet'	akóni (~akonéo)	N	'grindstone', 'whetstone'
alatízo	'salt'	aláti	N	'salt'
alonízo	'thresh'	alóni	N	'threshing floor'
asfalízo1	'secure', 'lock'	asfalís	A	'secure'
axnízo1	'steam', 'emit steam'	axnós	N	'steam'
delalízo	'announce sth as a town crier'	delális	N	'town crier'
dhigmatízo	'put a sample on show', 'take a sample'	dhígma	N	'sample'
kakízo	'disgrace', 'disapprove'	kakós	A	'bad'
kanonízo	'regulate', 'adjust', etc.	kanónas	N	'precept', 'rule'
kapnízo1	'smoke', 'give off smoke'	kapnós	N	'smoke'
kapnízo2	'smoke', 'cure'	kapnós	N	'smoke'
kapnízo3	'smoke', 'puff'	kapnós	N	'smoke'
katharízo	'clean'	katharós	A	'clean'
kerdhízo1	'earn'	kérdhos	N	'profit', 'gain'
kokinízo1	'reddden', 'make sth red'	kókinos	A	'red'
laxtarízo	'give sb a turn'	laxtára	N	'fright', 'turn'
magnitízo	'magnetize'	magnítis, magnitikós	N, A	'magnet', 'magnetic'
masurízo	'wind sth on a reel'	masúri	N	'reel'
midhenízo2	'reduce to zero' (for counter), 'give no marks at all' (literally 'give the mark 0')	midhén	N	'zero'
onidhízo	'disgrace', 'blame'	ónidhos	N	'disgrace', 'blame'
orkízo	'put sb on/under oath', 'swear in'	órkos	N	'oath', 'swearing'
pistolízo	'shoot with a pistol', 'shoot'	pistóli	N	'pistol'
plevrízo1	'anchor', 'drop/cast anchor'	plevró	N	'side'
plevrízo2	'come up to', 'draw/come alongside'	plevró	N	'side'
plimirízo	'overflow', 'flood'	plimíra	N	'overflow', 'flood'
prasinízo1	'make green'	prásinos	A	'green'

progízo2	'shy' (animal), 'scare'
pseftízo	'reduce the quality of sth'
ramfízo	'peck (at)', 'pick'
ravdhízo	'beat with a stick'
skonízo	'cover with dust'
sosialízo	'have a socialistic attitude/behaviour'
stubízo	'pestle'
termatízo1	'bring to an end'
troxízo	'whet', 'grind'
xaramízo	'waste'
xastukízo	'slap sb in the face'
zorízo	'put pressure on sb'

próga	N	'aggressive teasing'
pséftis	N	'liar'
rámfos	N	'bill', 'beak'
ravdhí	N	'stick'
skóni	N	'dust'
sosialismós, sosialistís	N, N	'socialism', 'socialist'
stúbos	N	'pestle'
térma	N	'end'
troxós	N	'whetting/ grinding wheel'
xarámi	ADV	'in vain', 'be wasted'
xastúki	N	'slap/smack in the face'
zóri	N	'stress', 'force'

Appendix 3: Verb endings in Modern Greek

	<i>1st conjugation</i>		<i>2nd conjugation: type A</i>		<i>2nd conjugation: type B</i>	
	<i>Sg.</i>	<i>Pl.</i>	<i>Sg.</i>	<i>Pl.</i>	<i>Sg.</i>	<i>Pl.</i>
<i>Active voice:</i>						
Present	´-o	´-ume	-ó	-áme	-ó	-úme
	´-is	´-ete	-ás	-áte	-ís	-íte
	´-i	´-un	-ái	-ún	-í	-ún
Imperfect	´--a	´-ame	-úsa	-úsame	-úsa	-úsame
	´--es	´-ate	-úses	-úsate	-úses	-úsate
	´--e	´--an	-úse	-úsan	-úse	-úsan
Dependent	´-o	´-ume	´-o	´-ume	´-o	´-ume
	´-is	´-ete	´-is	´-ete	´-is	´-ete
	´-i	´-un	´-i	´-un	´-i	´-un
Simple past	´--a	´-ame	´--a	´-ame	´-a	´-ame
	´--es	´-ate	´--es	´-ate	´--es	´-ate
	´--e	´--an	´--e	´--an	´--e	´--an
Imperfective imperative	´--e/´-e	´-ete	´-a	-áte	´-i	-íte
Perfective imperative	´--e/´-e	´-(e)te	´--e	´-te	´--e	´-te
Gerund	´-odas		-ódas		-ódas	

<i>Passive voice:</i>	<i>Sg.</i>	<i>Pl.</i>	<i>Sg.</i>	<i>Pl.</i>	<i>Sg.</i>	<i>Pl.</i>
Present	´-ome	-ómaste	-iéme	-iómaste	-úme	-úmaste
	´-ese	´-este	-iése	-iéste	-íse	-íste
	´-ete	´-ode	-iéte	-iúde	-íte	-úde
Imperfect	-ómun	-ómastan	-iómun	-iómastan	-úmun	-úmastan
	-ósun	-ósastan	-iósun	-iósastan	-úsun	-úsastan
	-ótan	´-odan	-iótan	-iúdan	-údan	-údan
Dependent	-ó	-úme	-ó	-úme	-ó	-úme
	-ís	-íte	-ís	-íte	-ís	-íte
	-í	-ún	-í	-ún	-í	-ún
Simple past	´-ika	-íkame	´-ika	-íkame	´-ika	-íkame
	´-ikes	-íkate	´-ikes	-íkate	´-ikes	-íkate
	´-ike	´-ikan	´-ike	´-ikan	´-ike	´-ikan
Imperfective imperative	(lacking)		(lacking)		(lacking)	
Perfective imperative	´-u	-íte	´-u	-íte	´-u	-íte

Adapted from Holton, David/Mackridg, Peter/Philippaki-Warburton, Irene (1997): *Greek. A comprehensive grammar of the modern language*. London: 116, with permission.