On the grammatical nature of conversion: evidence from Modern Greek

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Abstract. In this paper, I examine the grammatical nature of conversion by focusing on conversion pairs in Standard Modern Greek. I argue that conversion in these data should be analysed as a paradigmatic relation between the members of the conversion pair and the relation per se is the locus of interpretation of the morphosyntactic and morphosemantic properties of the output of the process.

Keywords. form-meaning asymmetry, conversion, paradigmatic relations, Standard Modern Greek

1. Introduction

Languages display a tendency towards isomorphism between units of content and units of form in the morphological structure, the so-called ONE-FORM-ONE-MEANING PRINCIPLE which is usually attributed to Von Humboldt (cf. Vennemann, 1972). In English, for example, the attachment of the verb-forming -ify in cases like [pure], > [[pur],-ify], signals the derivation of a verb from the (corresponding) adjective, as well as the directionality of the process in terms of formal and semantic compositionality. This ideal, though, is rarely met in human languages.

A prime example of deviation from this one-to-one correspondence between form and meaning is the morphological phenomenon of conversion. CONVERSION can be defined as change in the category or in (some of) the inherent features of the base without a concomitant change in its phonological form (Booij, 2002), e.g.: [Google], > [[google],v]. As the definition itself suggests, conversion falls far short of this ideal of isomorphism in morphological constructions, since the change in morphosyntactic properties of the base (before inflection applies) is not expressed by a discrete, intrinsically meaningful element (form-meaning asymmetry).

Conversion as a grammatical phenomenon raises a crucial question: what is the best way to account for this asymmetrical relation between form and meaning? In regard to this question, one may distinguish mainly two approaches. On what is termed the RELISTING HYPOTHESIS (RH), conversion is not regarded as a derivational process, but instead as a process of simple relisting of a lexical item in the lexicon (cf. Lieber, 1980, 1981). The alternative to this approach treats conversion as a

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1 The principle of directionality recognizes a relationship between two morphological items (a base and a derived word) in which one is characterized on the basis of the other (Iacobini, 2000).

2 See the discussion in Zwanenburg (2000) and the references therein.
grammatical process similar to other derivational processes. Within the latter approach, however, morphologists disagree about the type of analysis to be followed for the formal representation of the relation between form and meaning in conversion pairs. The analyses provided depend on the underlying assumptions one makes regarding the nature of morphological derivation.

Following the classification outlined in Beard (1998), one can distinguish three different accounts concerning the nature of derivation. First, derivation can be considered as a matter of LEXICAL SELECTION (in Beard’s terms), the selection of an affix and the process of copying it into a word-level structure. The affix bears a meaning and is inherently specified as to certain morphosyntactic properties. The morphosyntactic properties and the meaning are added to the base in order to yield the structure required. Second, derivation can be considered as an OPERATION (or set of operations) which changes the morphosyntactic and/or morphosemantic properties of the base word. In this respect, a derivational morpheme is not an object to be selected, but is the process of affix insertion itself. Finally, derivation can be considered as a set of PARADIGMATIC RELATIONS which connect items in a structured lexicon. These relations are established by the speakers of a language on the basis of the linguistic evidence at their disposal, and are considered as the locus of interpretation of the derivational relations.

In affix-based models (e.g. Marchand, 1969), the asymmetry between form and meaning in conversion is resolved by the postulation of a zero-affix which is added to the morphological structure by means of either a lexical selection process or a feature-changing rule. On the other hand, in models which assume paradigmatic relations between lexical items (e.g. Booij, 1997) the asymmetry between form and meaning in conversion is computed as part of the relation between lexical items. In what follows, I will discuss the differences between the various models.

The present paper focuses on cases of conversion in Standard Modern Greek (henceforth MGr). Conversion in MGr can change nominal bases, either simple bases or compound formations with bound stems, into verbs. The MGr data have not been thoroughly discussed in the literature. However, these data offer important insights for the ongoing discussion on conversion, since they challenge the view that conversion should be considered as either simple relisting in the lexicon or the result of a feature-changing rule. I will show that conversion in MGr provides evidence in favour of an account of conversion as a paradigmatic relation between two lexical items which is established in the lexicon.

1 I borrow this term from Lee (2007).

2 According to Ralli (2007a, b and forthcoming), in Modern Greek we can recognize two different types of stems: the regular stems and the so-called bound stems. Bound stems display properties similar to those of combining forms (cf. Bauer, 1983) and can be considered as borderline cases between compounding and derivation. Bound stems have an argument structure and a lexical meaning, like regular stems, but they cannot be minimal free forms after the addition of inflectional affixes and constitute a closed class, like affixes. Conversion appears only in compounds in which the bound stem is the second element.
2. The grammatical nature of conversion

Conversion is a case *par excellence* of form-meaning asymmetry in morphology. From the earliest days in morphological theory, conversion has given rise to a number of theoretical issues including, among others, the questions of whether conversion should be treated as a derivational process and of what is the best way to account for the relation between form and meaning in conversion. In this section, I will give a general overview of the various theoretical proposals concerning these issues. This serves to prepare the ground for the main issue of this article to be discussed in the following sections, to wit the analysis of MGr conversion.

2.1. Relisting Hypothesis

The asymmetry between form and meaning in conversion pairs has been a matter of considerable discussion throughout Lieber's (1980, 1981, 2004) seminal work. Lieber was the first to draw a distinctive line between affixational processes and conversion on the basis of the criterion of directionality. The basic difference between the two types of word formation can be identified as follows. In any sort of affixational process, the addition of an affix to a base signals the derivation of a new item and -at the same time- the directionality of the process with respect to formal as well as semantic compositionality. In conversion, however, there is no addition of a discrete, intrinsically meaningful element and, thus, the directionality of the process cannot be determined a priori. On the basis of this difference, Lieber argues that conversion cannot be regarded as an affixational process, and, going a step further, that conversion cannot be regarded as a grammatical process, at all. Instead, conversion should be expressed as a R**E**ND**U**ND**A**NCY **R**ELAT**I**ON in the permanent lexicon. The core of Lieber's proposal reads as follows:

>'Conversion would be defined as a relation *R* such that lexical terminals *X* and *Y* satisfy *R* if and only if they differ only with respect to their category class membership' (Lieber 1980: 198).

As this definition implies, this account does not entail any formal representation of conversion. Instead, the creation of an item by means of conversion can be ascribed to a copying process in the lexicon. Lieber's RH can be illustrated by the following conversion pair in MGr (from Ralli, 1988):"
(1)

Lexical entry 1
Odig(os) 'driver'
Lexical category: N

Lexical entry 2
Odig(o) 'drive'
Lexical category: V

\[ R = [Odig(os)]_N \leftrightarrow^a [Odig(o)]_V \]

Each member of the conversion pair in (1) has a separate lexical entry, specified individually as to its lexical class and category membership, and a relation \( R \) relates the two members of the pair. In this account, neither member of the conversion pair should be considered as basic.

In later work, Lieber (2004) examines the semantic aspects of conversion and provides further argumentation in favour of the RH. According to Lieber (2004: 89 ff.), a rigorous examination of verbal conversion in English, when compared to a semantic analysis of the genuine verb-forming affix -ize, demonstrates that the semantic range exhibited by converted verbs is larger than those of -ize verbs, and that the patterns into which converted verbs fall are quite different from those of -ize forms. These facts suggest that conversion does not parallel genuine affixational processes and, accordingly, should be treated differently.9

2.2. Conversion as a directional process

2.2.1. Zero affixation analysis

Marchand describes conversion as follows (1969: 356):

'By derivation by a zero morpheme I understand the use of a word as a determinant in a syntagma whose determinatum is not expressed in phonic form but understood to be present in content, thanks to an association with other syntagmas where the element of the content has its counterpart on the plane of phonic expression'.

Marchand compares English derivatives employing the suffix -ize, such as legalize, nationalize and sterilize, with verbs such as clean, dirty and tidy, and observes that the syntactic and semantic properties of the formations are the same in both groups; a verb is derived from an adjective and has the meaning 'render sth <ADJECTIVE>'. However, in the first group the content element is expressed by the overt morpheme -ize, while in the second group the content element has no counterpart in the phonic

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9 The double arrow represents the bidirectionality of the redundancy relation.

9 An interesting discussion of the semantic properties of verbal conversion in English can be found in Aronoff (1980).
expression. Marchand therefore claims that the derivational morpheme is zero-marked in the second group.\textsuperscript{10}

Marchand's analysis is based on the assumption that a linguistic unit is a two-faceted linguistic entity and, hence, that semantics plays an important role in the analysis of conversion pairs. The asymmetry between formal and semantic structure in conversion pairs is accounted for by the postulation of a zero affix which changes the category of the base, and the heuristic principle for the analysis of conversion pairs is the comparison of these formations with other derivational pairs displaying the same properties.

\subsection{2.2.2. Conversion as a process}

An alternative approach to conversion can be found in Don's (1993) work. His model essentially consists of two parts: a \textit{Lexicon} which accounts for the 'paradigmatic' mismatches found across the inventory of morphemes within a specific language, and an \textit{Engine} which takes the form of Finite State Transducer (FST). This FST performs the mapping between the formal and semantic level of representation and accounts for the 'syntagmatic' mismatches.

According to Don, conversion constitutes a case of syntagmatic mismatch, since there is an affix at the morphosyntactic level, but there is no phonological material expressing the content of this affix. In Don's (1993: 99-100) analysis, the English converted noun \textit{[walk]} has the following representation:

\begin{equation}
\begin{array}{c}
N \\
\text{NOM(inalizer)} \\
\text{Walk}
\end{array}
\end{equation}

The representation in (2) shares many features with the traditional affix-based models: for example, at the morphosyntactic level, the affix is considered as the head of the converted word. However, it differs from them in that it assumes a second level of abstraction for the morphosyntactic properties of the affixes (represented in capital letters in (2)). According to Don, a basic advantage of assuming two levels of representation lies in the fact that it allows for the existence of a more complex form at the morphosyntactic level, but a simpler form at the morphophonological level, and thus gives a more straightforward explanation for the asymmetry found in cases of conversion.

Don also addresses the question of the grammatical nature of conversion and convincingly argues that conversion should be analysed as a directional

\textsuperscript{10}The basic criterion for the recognition of zero derivational relations has been the existence of appropriate analogues involving overt morphological marking of the same derivational function, the so-called 'overt analogue criterion' (see Sanders, 1988).
morphological process. Crucial evidence for the directionality of a derivational process can be adduced by the examination of the lexical-class properties of the output. According to the criterion of UNIFORMITY OF THE OUTPUT-CLASS, if the outputs of conversion always fall into the same lexical class, conversion should be considered as a type of affixational process.

However, uniformity of the output-class is not always observed in instances of conversion. An illustrative example of deviation from this criterion can be seen in these Dutch conversion pairs:

Table 1: Conversion pairs in Dutch

<table>
<thead>
<tr>
<th>Group A (V→N)</th>
<th>Verb</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>bouw</td>
<td>'to build'</td>
<td>de bouw</td>
</tr>
<tr>
<td>loop</td>
<td>'to walk'</td>
<td>de loop</td>
</tr>
<tr>
<td>strijd</td>
<td>'to fight'</td>
<td>de strijd</td>
</tr>
<tr>
<td>trap</td>
<td>'to kick'</td>
<td>de trap</td>
</tr>
<tr>
<td>trek</td>
<td>'to migrate'</td>
<td>de trek</td>
</tr>
<tr>
<td>val</td>
<td>'to fall'</td>
<td>de val</td>
</tr>
<tr>
<td>Group B (N→V)</td>
<td>deel</td>
<td>'to divide'</td>
</tr>
<tr>
<td>feest</td>
<td>'to party'</td>
<td>het feest</td>
</tr>
<tr>
<td>huis</td>
<td>'to live in'</td>
<td>het huis</td>
</tr>
<tr>
<td>water</td>
<td>'to water'</td>
<td>het water</td>
</tr>
<tr>
<td>werk</td>
<td>'to work'</td>
<td>het werk</td>
</tr>
<tr>
<td>pen</td>
<td>'to write'</td>
<td>de pen</td>
</tr>
<tr>
<td>stoel</td>
<td>'to be based on'</td>
<td>de stoel</td>
</tr>
<tr>
<td>vloer</td>
<td>'to bring down'</td>
<td>de vloer</td>
</tr>
<tr>
<td>bal</td>
<td>'to play with a ball'</td>
<td>de bal</td>
</tr>
<tr>
<td>tafel</td>
<td>'to have a meal'</td>
<td>de tafel</td>
</tr>
</tbody>
</table>

The data in table (1) show that a number of verbs in Dutch have phonologically identical corresponding nouns, thus, forming conversion pairs. The nouns in the right-hand column fall into two different classes: those taking the definite article de, and those taking the definite article het.

Let us now turn to the potential analyses logically available in response to this problem, as presented by Don. If we analyse all nouns as derived from verbs, this would imply the existence of an affix - i.e. a (NOM)inalizer, which derives nouns and subcategorizes verbs. In this account, according to the criterion of uniformity of the 11 Data in table 1 were cited from Don (1993: 150) and supplemented with examples provided by Booij (p.c.).
output class, we would expect to find the same value of gender in the outputs of the affixational process. This solution, however, proves to be problematic: nouns in group A have a [-neuter] gender value, while nouns in group B may have either [-neuter] or [+neuter] gender value.

An alternative would be to assume the opposite direction of derivation, that is, verbs are derived from the corresponding nouns. In this case, we would derive verbs by an AFFIX which we may call VERB(alizer) and the two different types of nouns which serve as input to the derivational process would no longer be problematic. This solution also faces problems, since the verbs involved seem to belong to two different classes: the 'strong verbs' like *loop-liep-gelopen* with irregular inflection and the 'weak verbs' like *feest-feestte-gefeest* with regular inflection. Thus, this analysis faces the same problems as the analysis based on the nominalizing affix.

Don's solution is the following. In cases where the outputs of conversion do not fall into the same class, Don claims that we can assume one morphological derivation which results in two (or even more) different AFFIXATIONS. He claims that nouns in group A are formed on the basis by an affix NOM, while verbs in group B are formed on the basis of nouns by an affix VERB. This solution accounts for the fact that nouns in group A fall into the same class with respect to gender value, while all verbs in group B exhibit regular inflection.\(^\text{12}\)

### 2.3. Conversion as a set of paradigmatic relations

Unlike classic constructive (either affix-based or rule-based) models which assume that individual forms are derived in isolation from other forms in a grammatical system, paradigmatic models assume that derivation can be conceived of as a set of paradigmatic relations. In this view, conversion can be interpreted as the correlation between members of word sets which have the same degree of morphological complexity, but differ with respect to their meaning or their morphosyntactic properties. This correlation is established by the speakers of a language on the basis of the linguistic evidence available to them, and can be considered as the *locus of interpretation* of the properties of the converted elements.

An elaborated paradigmatic account of conversion can be found in Booij (1997). Booij examines the relation between conversion and gender assignment in Dutch and shows that, although in many cases the gender value of a complex noun in Dutch is determined by one of its constituents, there are also several cases in which the gender value cannot be predicted in this way. The following table summarizes a set of illustrative data:

\(^{12}\) Don's (1993) analysis is also examined by Booij (1995).
Table 2: Conversion pairs in Dutch (Booij, 1997: 48)

<table>
<thead>
<tr>
<th>Verb</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>raad(^{13})‘to advise’</td>
<td>de raad ‘advice’</td>
</tr>
<tr>
<td></td>
<td>[COMMON GENDER]</td>
</tr>
<tr>
<td>be-raad ‘to deliberate’</td>
<td>het beraad ‘deliberation’</td>
</tr>
<tr>
<td></td>
<td>[NEUTER GENDER]</td>
</tr>
<tr>
<td>ver-raad ‘to betray’</td>
<td>het verraad ‘betrayal’</td>
</tr>
<tr>
<td></td>
<td>[NEUTER GENDER]</td>
</tr>
<tr>
<td>roep ‘to call’</td>
<td>de roep ‘call’</td>
</tr>
<tr>
<td></td>
<td>[COMMON GENDER]</td>
</tr>
<tr>
<td>be-roep ‘to call’</td>
<td>het beroep ‘profession’</td>
</tr>
<tr>
<td></td>
<td>[NEUTER GENDER]</td>
</tr>
<tr>
<td>zet ‘to put’</td>
<td>de zet ‘the push’</td>
</tr>
<tr>
<td></td>
<td>[COMMON GENDER]</td>
</tr>
<tr>
<td>ont-zet ‘to relieve’</td>
<td>het ontzet ‘relief’</td>
</tr>
<tr>
<td></td>
<td>[NEUTER GENDER]</td>
</tr>
</tbody>
</table>

The data in table (2) imply that gender assignment correlates with the formal complexity of the verbal base. In cases such as raad ‘to advise’, in which a simple verb is converted into a noun, the gender value is [common], while when the same verbal base is prefixed, such as beraad ‘to deliberate’, the conversion results in nouns with the gender value [neuter]. In this respect, the gender value of the noun cannot be interpreted as the contribution of a particular morphotactic unit of the morphological structure. Instead, the gender value of the converted nouns is predicted only by making use of information about the corresponding verb.

Now the question that arises concerns the formal process that accounts for this difference in gender assignment. Based on the assumption that the relation between the two items is the locus of interpretation of the properties of the converted noun, the systematic difference in gender can be considered as part of this relation. A (provisional) representation of this paradigmatic relation reads as follows:

(3)

\[
<\text{zet, 'to put'}> \approx <\text{[z[t]}_vN[\text{COMMON GENDER}] \ 'the push'>
\]

\[
<\text{[ont-zet, 'to relieve'}> \approx <\text{[ont}[t]_vN[\text{NEUTER GENDER}] \ 'relief'>
\]

Words are form-meaning pairs and the symbols < > demarcate the whole construction. The symbol \(\approx\) represents the paradigmatic correlation between sets of words which have the same degree of morphological complexity, but differ with respect to lexical category and gender value. Since the same correlation holds for a number of different sets of words in Dutch, we can represent conversion as a relation between abstract schemas:

\(^{13}\)Verbs are presented in the stem form and not in the citation form -i.e. without the infinitival marker -en.
The schemas in (4) represent the correlation between conversion pairs -i.e. pairs of words that have the same phonological make-up, but differ with respect to their meaning and morphosyntactic properties. These schemas abstract over sets of existing words in Dutch, and, at the same time, specify the pattern according to which new words may be coined. A basic advantage of these schemas lies in the fact that the gender of converted nouns is determined by the structural characteristics of the corresponding verb. Put differently, one may predict the gender value of the converted noun on the basis of the relation between the noun and the verb.

2.4. Evaluation of the models

Derivational processes which display an isomorphic relation between form and meaning can be considered as CANONICAL DERIVATION (cf. Corbett, 2010). Canonical derivation is compatible with several theoretical approaches. However, conversion deviates significantly from the isomorphic ideal of one-to-one correspondence between form and meaning and, as a non-canonical phenomenon of derivation, represents a challenge for the various theoretical proposals.

Thus far, I have presented some models for the representation of the grammatical properties of conversion. In what follows, I compare these models and argue that an analysis based on paradigmatic relations is to be preferred.

The first point concerns the relation between form and meaning in conversion pairs. RH is based on the assumption that form and meaning are -in principle-separate phenomena in morphological structures. Particularly with respect to conversion, Lieber claims that 'an analysis of the semantics of conversion is, in principle, independent of our syntactic analysis of conversion, and in particular that the semantic analysis can involve directionality without arguing in any way against the non-directionality of the syntactic analysis' (1980: 203).

The same idea can be found in Don’s analysis, which assumes two different separate levels in morphological structures. Don tackles the problem of the asymmetry (or mismatch in his terms) between form and meaning by separating derivation (morphosyntactic level) from affixation (morphophonological level).

However, as has already been observed, there are many examples in which conversion pairs display a clear directionality in terms of semantic compositionality and semantics along with the formal properties of structures can serve as a valuable test for the formal account of conversion pairs. Following the basic tenets of Construction Morphology, I assume that words are form-meaning pairs and morphological analysis should treat formal structure on a par with semantic structure.

Based on these premises, the next question to be addressed is: what is the best way to account for the asymmetry between form and meaning in conversion pairs? Marchand’s zero-affixation approach solves the problem of the asymmetry between
form and meaning by introducing zero morphemes. However, this is a rather disputable solution in the analysis of conversion. The question that naturally arises concerns the grammatical characteristics of zero affixes in the morphological analysis. On the basis of Swahili verb morphology and English derivation, Stump (1997) argues that there is a distinction between derivational and inflectional morphology with respect to zero morphemes (or significative absence in his terms), since, in many cases of inflectional morphology, the forms are distinguished by the absence of any affix, while, in derivational morphology, there is nothing strictly comparable to significative absence. On the basis of data from Greek, Ralli (1988, 2003, and 2005) argues that we can assume zero morphemes in inflection but not in derivation. Similarly, among others, Booij (2002) and Lieber (1980) claim that the positing of zero affixation as a derivational process raises a number of problems. In many languages, such as English, the bases that form input to conversion processes do not fall into a uniform lexical class, and a proliferation of zero morphemes for the different categories of the bases is thus an unavoidable consequence of such a move. Moreover, there is an inherent difficulty in defining the formal and semantic properties of zero morphemes, since there is no independent evidence for their combinability properties, their position in the formation (prefix or suffix), or their selectional properties. Therefore, although the postulation of zero morphemes may be useful in the analysis of inflectional phenomena, it is not clear that zero morphemes are valuable analytical tools in derivational morphology. In most cases, there is no independent motivation for the postulation of zero morphemes in derivation, and the sole rationale that would motivate this choice would be to force the morphology to fit the theoretical position that every morphological structure approaches the ideal of one-to-one correspondence between form and meaning.

As concerns the directionality of the process of conversion, Don's analysis provides robust evidence in favour of the view that conversion is a directional process. Yet, as discussed above, the drawbacks of his analysis centre upon the development of his theoretical proposal. Therefore, Don's solution for the representation of the form-meaning asymmetry is not a step in the right direction. In the following section, I discuss conversion pairs in MGr.

3. Conversion in Modern Greek

Thus far, I have raised the question of the grammatical nature of conversion. I have also discussed the possible alternatives regarding the formal representation of the process. In this section, I look in more detail at the MGr data. The aim is to shed light on the issue of the formal representation of conversion by examining data which have not been thoroughly discussed before. I aim to show that conversion should be analysed as a set of paradigmatic relations established in the lexicon and projected onto the syntagmatic axis.

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14 See also Manova (2011) for a discussion of Marchand's account of conversion.
3.1. Compounds with bound stems and conversion

Conversion in MGr can change nominal bases, either simple bases or compound formations with bound stems, into verbs. I start the analysis by focusing on compound formations. First, it is important to notice that conversion in MGr appears only in one specific pattern of compounding—i.e., those compounds which take a bound stem as their second constituent, and it does not appear in compound formations with regular stems. Consider the following data:

Table 3: Conversion of compound formations

<table>
<thead>
<tr>
<th>Noun</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>([\text{arthr-o-graf}_N\text{-os}_N]) 'columnist'</td>
<td>([\text{arthr-o-graf}_N\text{-ó}_1]) 'perform the activity of a columnist'</td>
</tr>
<tr>
<td>STEM-CM-BOUND STEM(N)- NOM.SG</td>
<td>STEM-CM-BOUND STEM- 1SG</td>
</tr>
<tr>
<td>([\text{kerd-o-skop}_N\text{-os}_N]) 'profiteer'</td>
<td>([\text{kerd-o-skop}_N\text{-ó}_1]) 'perform the activity of a profiteer'</td>
</tr>
<tr>
<td>STEM-CM-BOUND STEM(N)- NOM.SG</td>
<td>STEM-CM-BOUND STEM- 1SG</td>
</tr>
<tr>
<td>([\text{kair-o-skop}_N\text{-os}_N]) 'opportunist'</td>
<td>([\text{kair-o-skop}_N\text{-ó}_1]) 'perform the activity of an opportunist'</td>
</tr>
<tr>
<td>STEM-CM-BOUND STEM(N)- NOM.SG</td>
<td>STEM-CM-BOUND STEM- 1SG</td>
</tr>
<tr>
<td>([\text{gloss-o-log}_N\text{-os}_N]) 'linguist'</td>
<td>([\text{gloss-o-log}_N\text{-ó}_1]) 'perform the activity of a linguist'</td>
</tr>
<tr>
<td>STEM-CM-BOUND STEM(N)- NOM.SG</td>
<td>STEM-CM-BOUND STEM- 1SG</td>
</tr>
<tr>
<td>([\text{theoritik-o-log}_N\text{-os}_N]) 'theoretician'</td>
<td>([\text{theoritik-o-log}_N\text{-ó}_1]) 'perform the activity of a theoretician'</td>
</tr>
<tr>
<td>STEM-CM-BOUND STEM(N)- NOM.SG</td>
<td>STEM-CM-BOUND STEM- 1SG</td>
</tr>
<tr>
<td>([\text{etym-o-log}_N\text{-os}_N]) 'etymologist'</td>
<td>([\text{etym-o-log}_N\text{-ó}_1]) 'perform the activity of an etymologist'</td>
</tr>
<tr>
<td>STEM-CM-BOUND STEM(N)- NOM.SG</td>
<td>STEM-CM-BOUND STEM- 1SG</td>
</tr>
</tbody>
</table>

The interested reader may read Ralli (2007a, b, and forthcoming) for a detailed discussion of the grammatical characteristics of compound formations and bound stems in Greek.

As the anonymous reviewer has pointed out, Van Marie (1985: 161) has argued that ‘conversion on the basis of a complex starting-point is by far the most exceptional: “normally” conversion takes the simplex words of a word-class as its starting point.’ The Greek data falsify this claim, since conversion is a very productive process in compound formations. Moreover, as suggested by the reviewer, accurately in my opinion, ‘Van Marie’s claim is not completely borne out by Germanic and Romance data either, but for these languages it seems to constitute at least a good statistical approximation’. For example, in Dutch the nominal compound voetbal ‘football’ can be converted into the verb voetballen ‘to play football’.

According to the rules of MGr orthography, the stress mark is obligatory. In the data under discussion in this paper I indicate the stress mark since it is of particular relevance to our analysis.

Glossing and abbreviations follow the Leipzig Glossing Rules (available at: http://www.eva.mpg.de/lingua/resources/glossing-rules.php). The following abbreviation has been added for the analysis of the data in this paper: CM= compound marker.
In merely descriptive terms, table (3) shows that verbs have the same morphological make-up as the corresponding nouns (NB inflection should not be taken into account), but they differ from them with respect to semantic compositionality. Since the change of category cannot be attributed to any morphotactic unit visible in the formal make-up of the words, these data raise a number of issues, including the question: what is the best way to account for the relation between form and meaning in these formations?

In order to answer this question, one should first focus on the formal and semantic properties of the nominal and verbal formations. Let us start with the directionality of derivation in these formations. Ralli (2005, 2007a, b) argues that conversion in compound formations with bound stems displays a clear direction of derivation; the nominal formations are to be considered as the input to conversion, whereas the verbal formations are to be seen as the result. As shown by Ralli, robust evidence comes from the historical development of these formations: as a matter of fact, the nominal formations always precede the corresponding verbal formations during the history of Greek.

Moreover, corroboration can be found in the accentual pattern of the verbal stems. In every verbal formation there is a movement of the stress towards the last syllable of the verb, e.g.: [glossológos] for ‘linguist’ vs. [glossologó] for ‘perform the activity of a linguist’. Since this stress pattern is highly systematic in conversion pairs, one may assume that the derivational process is expressed by a change in supra-segmental information -i.e. the stress pattern.- Both criteria prove useful in determining the direction of derivation in conversion pairs. In what follows, I discuss how they are integrated in a paradigmatic account of conversion.

A notable property of these converted verbs that has not yet come under discussion is the semantic compositionality of the formations. As shown in table (3), the verb always contains the meaning of the noun, not vice versa. For example, the verbal formation [glossologó] has the interpretation ‘perform the activity of a [glossológos] for ‘linguist’. Therefore, we can assume that the meaning of the verb is defined in relation to the meaning of the corresponding noun.

As for the question of how best to account for the form-meaning asymmetry, the relation between the noun and the verb can be assumed as the locus of interpretation of the formal and semantic characteristics of the verb. In this respect, the relation is more than just the sum of its parts and the specific properties of the formations stem from the combination of the two items.

I now turn to the formal representation of the relation between form and meaning in the data under examination. Conversion in MGr is modeled in terms of a paradigmatic relation between the members of the conversion pair. This relation is (provisionally) formulated in (5):

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19 A similar change in the stress pattern can be observed in a limited number of conversion pairs in English (see, principally, Kiparsky, 1982; Marchand, 1969).
20 As an anonymous reviewer has pointed out, the semantics of the examples in table (3) is also interesting from a broader perspective, since the meaning ‘to work as N’ is not freely available in many other languages (cf. English *to architect, *to linguist, *to policeman, *to professor, etc.).
The schema in (5) represents the relation between the noun and the verb of an existing conversion pair. Words are regarded as form-meaning pairs and the semantic structure is formalized in tandem with the formal structure. This pairing is indicated by means of the angle brackets. However, a model that aspires to account for the morphological creativity should not only describe existing conversion pairs, but it also needs to capture the fact that the same pattern can form a basis for the coinage of new words. In fact, the data in table (3) imply that nominal and verbal formations share some structural and semantic generalizations that can be projected onto the syntagmatic axis. These generalizations can be represented as follows:

(6)

\(<N_i \leftrightarrow \text{profession}_j > = <[N_j]_v- \text{perform the activity of someone who is a } [N_j]>

The schema in (6) shows that a noun can be converted into a verb in MGr. Moreover, it shows that neither item should be considered as basic. However, the critical question of directionality remains to be answered. Booij (1997) uses the formal mechanism of *indices*, in order to show the formal and semantic correspondences between the members of the conversion pair. The use of indices gives a straightforward account of the fact that a correspondence exists between two words which have the same phonological make-up and display a kind of semantic dependency. Seemingly, the use of indices opens the way to express the notion of directionality in conversion as the correspondence between certain formal and semantic aspects of the two lexical items involved. In this way, we can adequately account for the asymmetry between form and meaning without making use of additional machinery, such as zero affixation, which has no independent justification and which is hard to define in terms of formal characteristics.

The last problem to be addressed concerns the stress properties of the verbs. In the model of grammar adopted here, words and abstract schemas of word formation are conceived of as a triple of Phonological Structure (PS), Syntactic Structure (SS), and Conceptual Structure (CS), in the sense of Jackendoff (2002) and Booij (2010). The formal mechanism that accounts for word formation should capture all these aspects of words. As Jackendoff (2010: 587-588) puts it, in parallel architectures, the interface relation between different components cannot be a sequenced derivation, since structures in different components often stand in a many-to-many relation. Rather, the interface components must be treated as *constraints* (possibly violable), which establish (or license) well-formed links among different kinds of structure.

In this view, each member of the conversion pair should be treated as a construction which links all these aspects. Accordingly, the representation in (6) should be reformulated as follows:
The schema in (7) represents conversion in MGr as a relation between constructional schemas. In order for a speaker to acquire the verbs in this set of structures, a specific element A (noun) should meet the formal and semantic requirements of the input structure and a specific element B (verb) of the output structure, with the same interpretation of the variables. Through interpretation of the variables - i.e. unification, the output structure turns into a lexical entry. If the two elements do not meet the relevant formal and semantic requirements, unification will fail. The paradigmatic schema in (7) is abstracted from existing conversion pairs.

The assumption that conversion can be considered as a set of relations between lexical items can be likened to the RH, as concerns the core idea of the relation between the two members of the conversion pair. But a significant difference between the two models should be noted. The model of paradigmatic relations proposed by Booij (1997) assumes that conversion should be regarded not only as a relation between existing words of the vocabulary of the language, but also as an active grammatical process, which forms new sets of words. In this respect, abstract schemas generalize over sets of existing words and form the basis for coining new words.

In this view, the stress properties of the verb are analysed as an output-constraint in the abstract schema, represented as a feature of the output structure that a candidate should meet, in order to turn into a verbal formation. At this point, one may raise the question of whether the final stress of the verbal compound is a property of the constructional schema or a lexically specified property of the verb. Important evidence can be adduced from the examination of specific minimal pairs. Take, for example, the verbal formation arthrografó 'to perform the activity of a columnist', which has final stress, whereas the verb grafo 'to write' has penultimate stress. These minimal pairs show that the final stress should be analysed as a phonological feature of the constructional schema.

Moreover, it is important to notice that a construction-based approach to conversion in MGr enables us to state that conversion is productive in only one particular sub-class of compounds, since Construction Morphology allows for the postulation of specific sub-patterns.

3.2. Simple bases and conversion

Although conversion is pervasive in compound formations with bound stems, it can also be found in morphologically simple bases (cf. Ralli, 1988). Consider some conversion pairs of this type:

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21 While I indicate the compound marker as part of the first stem for the sake of representation, this choice does not imply a position on the theoretical issue of compound formation.

22 The process of unification is extensively discussed in Booij (2010) and Jackendoff (2011).
Table 4: Conversion of simple bases in MGr

<table>
<thead>
<tr>
<th>Noun</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>([\text{pygmáx}]_N\text{-os})_N 'boxer'</td>
<td>([\text{pygmax}]_N\text{-ó})_v STEM-1SG 'perform the activity of a boxer'</td>
</tr>
<tr>
<td>(\text{STEM(N)}\text{- NOM.SG} )</td>
<td></td>
</tr>
<tr>
<td>([\text{latóm}]_N\text{-os})_N 'quarry man'</td>
<td>([\text{latom}]_N\text{-ó})_v STEM-1SG 'perform the activity of a quarry man'</td>
</tr>
<tr>
<td>(\text{STEM(N)}\text{- NOM.SG} )</td>
<td></td>
</tr>
<tr>
<td>([\text{dikogór}]_N\text{-os})_N 'lawyer'</td>
<td>([\text{dikogor}]_N\text{-ó})_v STEM-1SG 'perform the activity of a lawyer'</td>
</tr>
<tr>
<td>(\text{STEM(N)}\text{- NOM.SG} )</td>
<td></td>
</tr>
</tbody>
</table>

The conversion pairs in table (4) display the same formal and semantic characteristics as compound formations with bound stems. Verbs in these conversion pairs follow the stress pattern of the verbal compounds with bound stems -i.e. stress on the final syllable, and display a dependency relation between their constituents in terms of semantics.

Conversion of simple bases can be analysed in terms of a paradigmatic relation between the members of the conversion pair:

(8) \(<[X]_N\text{-os}>_N \text{ 'one_who_}_X\text{'s¡'}>_v = [[[[X]_N\text{-ó}]]_v^{\text{[FINAL STRESS]}} \text{ 'perform the activity of }<[X]_N\text{-os}>_N \text{ 'one_who_}_X\text{'s¡'}>_v\)’

To sum up, conversion pairs with simple bases can also be analysed as sets of paradigmatically related schemas, like conversion pairs in compounds. This relation is not restricted only to members of existing conversion pairs, but it can also be extended to new formations.

4. Conclusions

Conversion is a non-canonical case of derivation which challenges the theoretical models of morphology, since it is a case par excellence of form-meaning asymmetry. In this paper, I have discussed some of the theoretical models which account for conversion. I have shown that conversion in MGr should be analysed as a set of paradigmatic relations established in the lexicon and projected onto the syntagmatic axis. The paradigmatic relation between the noun and the verb is the locus of interpretation of the various formal and semantic properties of the verb. I have argued that conversion pairs can be represented as a set of paradigmatically related constructional schemas. An important advantage of this approach is that the stress properties of the verbs can be directly expressed as an output constraint without requiring the use of any additional rule. Moreover, since constructions are form-meaning pairs, a Construction Morphology approach to conversion does justice to the relation between form and meaning in conversion pairs. Last but not least, a construction-based approach gives a straightforward account of the fact that
conversion applies only to a specific type of compound formations in MGr - i.e. compounds with bound stems, since it allows for the postulation of specific sub-patterns. In this view, conversion provides important insights for morphological theory, and, most crucially, 'whereas syntax describes how atomic signs connect to form complex signs, morphology describes the regular relations between atomic signs' (Becker 1993: 4).

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