Syntax and Morphology: what can compounds tell us? A review-article

Review of
SCALISE Sergio & Irene VOGEL 2010. *Cross-Disciplinary Issues in Compounding*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Emanuela Sanfelici

1. Introduction

The book under review comes out as a response to the increasing interest around compounding. Since compounds are at the interface of the various components of language, i.e. phonology, morphology, syntax, and semantics, their analysis is currently at the center of attention in all areas of linguistics, being the subject of several studies, both theoretical and applied.

The volume has its origins in relation to a conference organized in Bologna (Italy), in June 2008, representing the conjunction of two large research projects: Componet and the European Network for Linguistic Morphology (ENLM). The Componet has focused in particular on the description of compounds across a wide range of languages. The ENLM is a project that has brought together several European research centers, with the aim of addressing issues of morphology in a broader sense, including psycholinguistics, language acquisition and computational approaches. Thus, the book is the result of a cross-linguistic and inter-disciplinary approach to compounding, with the following goals: to better understand the nature of compounds and their place into the grammar, filling in some lacunae; to make this volume a basic reference source for those interested in theoretical and empirical approaches to compounding.

The reader is faced with an impressive work. The topics dealt with in such a huge enterprise are numerous, and this variety makes it very difficult to adequately characterize the theoretical and empirical scope of the volume. Hence, I will concentrate only on those papers that focus on the syntax-morphology interface phenomena from a theoretical point of view. In doing so, I attempt to provide a clear and likely picture of compounding, at least from this perspective. In what follows, I will give a detailed overview of the volume (§2); then, I will concentrate on some

Rivista di Linguistica 23.2 (2011), pp. 351-378 *(received June 2011)*

aspects that I consider more relevant both for the contribution made to the empirical domain and for their theoretical implications, attempting to provide some theoretical and methodological remarks (§3-5); at the end, I will propose some concluding remarks (§6).[1]

2. Overview of Scalise & Vogel (2010)

The volume is organized as follows: a presentation by the editors that provides a unified introduction to the whole volume (pp. 1-18); eighteen chapters arranged into four parts. The first part, *Delimiting the field*, addresses issues related to the basic nature of compounding (pp. 21-73). The chapters in it concentrate on which phenomena should be included in the category 'compounds' and why, and which others should be excluded. This issue is addressed by three different perspectives: a more theoretical and general one in 'The role of syntax and morphology in compounding' by Peter Ackema & Ad Neeleman (pp. 21-36), concerning the controversy of whether compound formation is a syntactic or a morphological operation; a more typological and diachronic one in 'Constraints on compounds and incorporation' by Marianne Mithun (pp. 37-56), which investigates the correlation between these two processes; and a more dialectal and diachronic perspective in 'Compounding versus derivation' by Angela Ralli (pp. 57-73), which discusses how to draw the line between phenomena involving derivation and those belonging to the realm of compounding.

In the second part, *At the core of compounding* (pp. 77-163), five papers deal with the theoretical issues from the perspective of different areas of the grammar. The first paper, 'Units in compounding' by Fabio Montermini (pp. 77-92), continues the discussion about the fuzzy line between morphological and syntactic aspects of compounds. Geert Booij's paper, 'Compound construction: schemas or analogy? A construction morphology perspective' (pp. 93-107), stresses the contribution analogy and abstract schema give to the formation of compounds. The third chapter, 'The head in compounding' written by Scalise & Fábregas (pp. 109-125), deals with the notion of 'head' in compounding and faces the problems and the challenges raised by defining the morphological, syntactic, and semantic features of the head. The focus is then shifted to the semantics of compounds, examined by Rochelle Lieber's paper 'On the lexical semantics of compounds: non-affixal (de)verbal compounds' (pp. 127-144). Finally, the last chapter, 'The phonology of compounds' by Irene Vogel (pp. 145-163) regards the phonological phenomena that can be seen as characteristic of compounds.

In the third section, *Typology and types of compounds*, the focus is on the classification of particular types of compounds from a typological viewpoint. Even though the bulk of the languages presented in this part is Indo-European, and particularly Germanic and Romance, many other non Indo-European languages are carefully treated, giving the book a good typological vein. Moreover, all the examples are well glossed, and the glossing system is homogeneous through all the chapters. The first paper, 'The typology of exocentric compounding' by Laurie Bauer (pp. 167-175), investigates what types of exocentric compounds can be discerned in linguistic descriptions. Based on a sample of over 50 languages, a small set of basic types is established. The second chapter, 'Coordination in compounding' by Giorgio Francesco Arcodia, Nicola Grandi & Bernhard Wälchli (pp. 177-197), deals with the expression of coordination relations in compounds. In this regard, two macro-types of compounds are identified, namely hyperonymic coordinating compounds, and hyponymic coordinating compounds. The third paper concerns the formation of parasynthetic compounds in Slavic and Romance languages, 'Parasynthetic compounds: data and theory' by Chiara Melloni & Antonietta Bisetto (pp. 199-217). The authors support Ackema & Neeleman (2004, 2010)'s theory of competition between the syntactic module and the morphological one. On the other hand, Livio Gaeta in his paper 'Synthetic compounds: with special reference to German' (pp. 219-235) supports the lexical approach of Construction Morphology, able to account for fine-grained patterns and relationships exhibited between the deverbal head and the nominal modifier in German synthetic compounds. The fifth chapter, 'Corpus data and theoretical implications: with special reference to Italian VN compounds' by Davide Ricca (pp. 237-254), shows the necessity of a quantitative approach to the analysis of compounding in order to evaluate the proposed morphological and phonological constraints on the compounds in question.

The last part, *Quantitative and psycholinguistic aspects of compounding*, consisting of five papers, deals with the more applied realms involving quantitative analyses as well as sign language and language acquisition. The first paper, 'Frequency effects in compound processing' by Harald Baayen, Victor Kuperman & Raymond Bertram (pp. 257-270), shows that the processing and understanding of compounds is more complex and dynamic than originally assumed. Using data from word naming, visual lexical decision, and eye-tracking studies, this paper discusses the role of compound token frequency, head and modifier token frequency, and head and modifier compound family sizes (type frequencies) in the comprehension of English and Dutch

compounds. These frequency measures enter into many complex interactions, arguing for morphological processing as part of a complex dynamic system. Also the second paper, 'Computational issues in compound processing' by Vito Pirrelli, Emiliano Guevara & Marco Baroni (pp. 271-285), deals with the understanding of compounds, moving from a computational perspective. The authors present a very detailed overview of the major findings from the last twenty years of computational research on these topics, and evaluate them on the basis of both theoretical and cognitive considerations. More psycholinguistically-oriented research is presented in the third chapter, 'Relational competition during compound interpretation' by Christina Gagné & Thomas Spalding (pp. 287-300). The authors focus on the process of compound interpretation, particularly with regard to the relation between the components of the compound. They propose that, during the interpretation of an endocentric compound, various relational structures compete for selection, and the fewer competitors the required selection has, the less time it takes the system to settle on that relation. Another interesting perspective is put forward in the fourth paper, 'Sign language and compounding' by Irit Meir, Mark Aronoff, Wendy Sandler & Carol Padden (pp. 301-322). As a matter of fact, compounding is one of the few sequential word formation processes found across sign languages. The authors explore compounds in a variety of sign languages. In particular, the Al-Sayyid Bedouin Sign Language provides insights into the way compounds arise and acquire structure, since this language came into being only 75 years ago. The authors find a relationship between the conventionalization and grammaticalization of compounds: when a form becomes conventionalized in the community, both morphological and phonological structures begin to emerge. At the end, the last chapter, 'First language acquisition of compounds: with special emphasis on early German child language' by Wolfgang U. Dressler, Laura E. Lettner & Katharina Korecky-Kröll (pp. 323-344), investigates the process of acquisition of compounds by two Austrian children, comparing these findings with what is known about compound acquisition in other languages. The first emerging compounds are subordinate and endocentric noun-noun compounds without linking elements. Left-headed and exocentric compounds had not yet emerged in the child speech corpora analyzed. The order of emergence of compound patterns can be related to other factors such as frequency, productivity, morphotactic and morphosemantic transparency.

This volume ends with a complete list of abbreviation (pp. 345-348), a master list of references (pp. 349-376), a language index

(pp. 377-378), and a subject index (pp. 379-382). Thanks to the two indexes, it is easy to look up specific theoretical and empirical issues as well as specific languages. As for the list of references, this book provides a unified, up-to-date and quite complete list of literature on compounds.

As it is shown by this brief overview, compounding raises many challenges. In the introduction, in fact, Scalise & Vogel stress the issues related with compounding:[2] (i) which are the units that form a compound, so then, what is a compound? (ii) how can compounds be classified? (iii) how many types of compounds are allowed by the grammar? (iv) where are compounds formed? In what follows, I will address these issues. My account will reproduce the architecture proposed in the introduction by Scalise & Vogel. In §3, I will discuss the definitional problem related to compounds, reviewing Montermini's paper 'Units in compounding' (pp. 77-92). In §4, I will concentrate on the classification issue, discussing the paper by Lieber 'On the lexical semantics of compounds. Non-affixal (de)verbal compounds' (pp. 127-144). In §5, I will introduce some issues regarding the syntax-morphology interface, reviewing the following papers: 'The role of syntax and morphology in compounding' by Ackema & Neeleman (pp. 21-36); 'Compounding versus derivation' by Ralli (pp. 57-73). At the end, in §6, I will make some conclusive remarks on the whole volume.

3. The definitional problem: what is a compound?

One of the challenges raised by compounding is the difficulty to come up with a general definition of compounds able to hold cross-linguistically. As Scalise & Vogel point out, the majority of proposals refers to the units that constitute the compounds (p. 5). The editors quote word-by-word a good variety of references reporting the definitions in there. However, it is evident that all the attempts to define 'compounds' face more or less similar difficulties. For defining a compound, the majority of the proposals uses the notion of 'word', a basic notion that is not without problems *per se*, since is does not have an uncontroversial definition (Dixon & Aikhenvald 2002). Furthermore, as pointed out by Lieber & Štekauer (2009), a compound may be a word for morphology, but not for phonology and syntax, and *viceversa*. Another weak point is due to the fact that the definition of 'compound' coincides with the units that form a compound: "a word-size unit containing two or more roots" (Harley 2009: 130); "a complex lexeme that can be thought of as consisting of two or more base lex-

emes" (Haspelmath 2002: 85); "a compound word contains at least two bases which are both words, or at any rate, root morphemes" (Katamba 1993: 54). This raises even more problems. First, there is no agreement about which units are the basic ones in compounds. Furthermore, the notions of 'stem', 'root' and 'lexemes' are identified differently in different languages. So the lack of a satisfactory definition for compounds is linked to the lack of an uncontroversial definition of other basic notions such as 'word', 'stems', 'roots' and 'lexemes'. Although everyone seems to have an intuitive conception of what a compound is, this notion is hard to formalize.

An interesting approach is that proposed by Montermini (pp. 77-92). In order to face this challenge, he adopts a word-based approach, in which words (lexemes) are considered as the basic units of morphological and lexical organization. The chapter deals with the units found in compounding from the viewpoint of both the input and the output. As Montermini says, Guevara & Scalise (2008: 104) suggest that there is a prototype of compound word in the world's languages, whose nature can be represented in the following schema: $[x\ R\ y]_Z$, "where X, Y and Z represent major lexical categories, and R represents an implicit relationship between the constituents (a relationship not spelled out by any lexical item)". To this definition, Montermini adds another property typical of canonical compounds, namely the property according to which a compound is a unit that may potentially acquire lexical status.

As for the output of compounding, the author recalls the quadripartite typology proposed by Gaeta & Ricca (2009: 38) which "allows us to treat the properties of being a lexical/stored unit or the output of a morphological operation as independent grades of freedom":

Table 1. Quadripartite typology of linguistic objects.

		Lexical	
		+	-
Morphological	+	Case A canonical compounds	Case B non-lexeme-forming derivation
	-	Case C lexicalized syntactic constructions	Case D canonical syntactic phrase

(adapted from Gaeta & Ricca 2009: 38)

An example for each type is It. *ferrovia* 'railway' (Case A), It. *astensione salva-Prodi* 'lit. abstention saving+Prodi, Prodi-saving abstention' (Case B), It. *luna di miele* 'lit. moon + P + honey, honeymoon' (Case C), It. *amante della musica* 'lover + P + music, music fan' (Case D). The use of this quadripartite typology can account for both canonical and non-canonical instances of compounds.[3]

As for the input, it is commonly stated that a prototypical instance of compounding is the product of the combination of more than one word. However, compounds may contain elements larger than a word. For instance, this is the case of so-called phrasal compounds, i.e. compounds containing units constructed by syntax, such as the English *over the fence gossip* (p. 80). On the contrary, compounds can be formed by elements smaller than a word, namely roots or stems. The input of compounding can be of two types, with several overlapping and borderline cases.

(a) Under the first category there are compound in which one or both members are identified as roots or stems, since their form is never found independently in syntax. Montermini suggests that this non-coincidence between a word form in syntax and compounds can have three possible explanations: (i) historical, partially unpredictable, reasons - Danish *jom-fru* 'lit. young-lady, virgin' vs. *ung* 'young'; (ii) a form found in compounds does not correspond to any of the forms of the lexeme as an independent unit – generally, it is the common segment underlying inflected forms, i.e. stem or root, such as in German *schwimm-bad* 'lit. swim-bath, swimming pool' vs. *schwimmen*$_{\text{INF}}$; (iii) the lexeme undergoes modifications, mostly predictable, deriving from the application of regular morphological or phonological rules, specific to compounding operations – Japanese *gakoo* from *gaku* + *koo* 'learning + school, school'.

(b) The second type of compounds formed by one or both members smaller than a word includes compounds whose components never appear as independent syntactic elements. These are semantically linked to existing elements but cannot be identified as a special morphological form of a particular lexeme. A common example is the case of neo-classical compounds: It. *ludoteca* 'toy library', in which the form *ludo-* is never found as an independent word, the indipendent word being the form *gioco*; It. *cardiologo* 'cardiologist', in which the form *card-* is substituted by the word *cuore* in syntax.

Montermini proposes that a compound is made of (at least) two lexemes, defining a lexeme as follows:

> "In most word-based theories of morphology the lexeme defines as an elementary sign combining at least three sets of properties, corresponding to three types of linguistic information: a phonological representation, a semantic representation, and morphosyntactic information (e.g. grammatical category). […]. In this work, I adopt a Word-and-Paradigm model of morphology (cf. Stump 2001: 1-30). In such a model, it can be assumed that the phonological properties of a lexeme […] cannot be reduced to a single form from which all the others can be derived. Rather, a lexeme is a structured set of connected forms, each of which is connected to a particular cell of the lexeme's paradigm. According to this view, each word-form as a whole expresses the set of morpho-syntactic properties which correspond to one particular cell" (pp. 86-87).

From this definition, it follows that the segmentation of a word into smaller pieces is only a useful descriptive device: roots and stems are simply the concrete manifestation of a lexeme in a subset of its syntactic and morphological functions. On this issue, in my view, few words of caution need to be said. From Montermini's words the reader can understand that morphemes are unnecessary in morphology, except for descriptive purposes. However, this would not be the right conclusion. In fact, as already pointed out, by Bybee & Newman (1995) and Haspelmath (2002)[4], among others, there is evidence in favor of the notion of morpheme. As a matter of fact, words are perceived by speakers as consisting of morphemes. Moreover, morphemes seem to be relevant for phonology. Many languages have phonological morpheme structure conditions, namely restrictions on the co-occurrence of sounds within a morpheme (cf. Booij 1998). For instance, in Standard Northern Italian, the *s* is pronounced [z] when it occurs between vowels (*casa* 'house'), otherwise it is pronounced [s] (*sole* 'sun'). However, when it is morpheme-initial, it is pronounced [s] even if it occurs between vowels (*asimmetrico* 'asymmetric'). Furthermore, it is well-known that new morphology mostly arises from syntactic construction when lexical items are grammaticalized to become affixes: this is the case of the adverbial suffix *-mente*, originally a feminine noun merged with an adjectival modifier in the ablative form, *chiara mente* 'lit. clear mind, clearly'. As a result, languages are constantly enriched by new concatenative morphological processes that can easily be described within a morpheme-based approach.

It is worthwhile noticing, however, that considering morphemes as real entities is not incompatible with the word-based approach delineated by Montermini. In fact, the author himself makes use of the notions of morpheme, root, stem. In conclusion, what is under dis-

cussion in the word-based model and the morpheme-based approach is the status of the morpheme, either as secondary or primary, and not its very existence.

Unfortunately, the author does not make this point clear, leading the reader to misleading conclusions. Another suggestion that I would like to propose regards Montermini's introduction of the notion of lexeme rather late in his contribution – page 87. It would be more reader-friendly to add a brief definition of lexeme already in the first pages'..

4. How many types of compounds are there cross-linguistically?

As is clear from the introduction of the book, many types of compounds are attested cross-linguistically, , and classifying them is not an easy task. In the literature, many proposals have been advanced for classifying the huge variety of existing compounds. However, these attempts are all unsatisfactory for one reason or another, as stressed by Scalise & Bisetto (2009) who, in alternative, propose their own classification.[5] The authors suggest that compounds can be divided into three grammatical classes (2009: 34-53): subordinate (*taxi driver*), attributive (*high school*), and coordinate (*poet doctor*). These classes are based on the grammatical relation between the two constituents, that is to say the role played by the 'R' element in the configuration $[x\ R\ y]_Z$ (cf. §3). For each class there are two other subtypes, endocentric and exocentric, depending on the presence of the head inside the compound.

Subordinate compounds are defined as follows: the two constituents are in a relation of complementation. This is the case of deverbal compounds (*trouble maker*), but also of N-N compounds, such as *apron string*.

In attributive compounds, the grammatical relation between the two constituents is one of attribution. Typically this type is represented by A-N or N-A structures, such as *high school*, *ice cold*. N-N compounds may also be attributive (*snail mail*).

Coordinate compounds express a relation of coordination. Typically, this type is represented by conjunctive coordination such as *poet painter*, but under this label two more types can be accommodated, namely phrasal compounds ([*floor of a birdcage*] *taste*, meaning 'terrible taste') and so-called neoclassical compounds (It. *odontotecnico* 'lit. tooth technician').[6]

In what follows, I will concentrate only on one paper that deals with a particular type of compounds: a type of subordinate endocentric compounds, the non-affixal (de)verbal compounds investigated by

Lieber (§ 5.1.). This choice is due to the fact that, in my opinion, this paper provides a valuable contribution to the basic classification proposed in Scalise & Bisetto (2009).

5. Subordinate compounds: non-affixal (de)verbal compounds

A type of subordinate compounds is represented by non-affixal (de)verbal compounds, such as *dog attack*, *snowdrift*, a relatively under-studied case that has escaped detailed analysis. This is the topic of Rochelle Lieber's paper (pp. 127-144), 'On the lexical semantics of compounds. Non-affixal (de)verbal compounds' (hence NDVC, as in Lieber's paper). These compounds consist of a noun and a verb, or a noun derived from a verb. Lieber identifies two types of NDVCs: type (i), which is a combination of a noun + a deverbal noun (e.g. *bee sting*, *earthquake*); type (ii), in which the status of the second element is not so easy to establish - whether a pure verb or a deverbal noun (*attack dog*, *cover letter*, *slide rule*).

The combination of a noun and a verb is also found in synthetic compounds, such as *animal training*, *food production*.[7] However, the type investigated by Lieber crucially differs from synthetic compounds, in that it tends to exhibit a subject-oriented interpretation: "it is relatively difficult to find synthetic compounds in which the first element is interpreted as the subject argument of the deverbal second element – e.g. *caribou migration*, *court ruling*, *livestock encroachment*; the vast majority of synthetic compounds receive an interpretation in which the first element is interpreted as the object […] of the deverbal noun" (p. 128). On the contrary, in NDVCs the object-orientation is weak (as already noted by Marchand 1969: 77). Selkirk (1982) claims that a subject-oriented interpretation is completely ruled out for synthetic compounds. However, it has been pointed out that, although the subject-oriented interpretation is difficult to obtain, it is not impossible, such as in *director buying*, in a context intended to mean that directors are buying (Bauer & Renouf 2001; Lieber 2004, 2009). As a matter of fact, Lieber's data prove that there are a non-negligible number of synthetic compounds allowing for a subject-oriented interpretation, even if it is far more difficult to find ordinary synthetic compounds with this interpretation than it is with NDVCs. In order to support her claims, Lieber offers the reader two very detailed appendixes at the end of her chapter: out of 112 synthetic compounds, only 13 can plausibly be interpreted as subject-oriented; of 164 NDVCs, 70 have subject-oriented interpretation.

The author thus concludes that both NDVCs and synthetic compounds share some features: (a) only one constituent of the compound is constructed as an argument of the other constituent;[8] (b) one element is or is derived from a verb. However, these two types crucially differ with respect to other parameters:

(a) the presence of a derivational affix. While in synthetic compounds we find an overt derivational affix on the deverbal noun, the deverbal noun in NDVCs does not show any overt affix, being made up by conversion;

(b) the endocentricity/exocentricity. While synthetic compounds can either be endocentric or exocentric, NDVCs are always endocentric;

(c) the default orientation. While synthetic compounds have a default object-oriented interpretation, NDVCs are subject oriented.

At this point, it remains to understand why this difference between NDVCs and synthetic compounds should exist. In order to grab the whole meaning of the paper, the author makes a very useful and reader-friendly digression on Lieber (2004)'s analysis of noun-to-verb conversion.[9] Probably, the most relevant proposal in Lieber (2004) is that a one-to-one correspondence between lexical semantic categories and syntactic categories does not need to hold. For example, the skeleton [- dynamic ([ ])] can either correspond to an adjective or to a stative verb. Given the ability to map a semantic skeleton onto different syntactic categories does not need to hold, eventive skeletons do not always correspond to syntactic verbs. Thus a noun can have an eventive character, without needing any dedicated suffix. Keeping this in mind, the reader has all the instruments at hand for understanding Lieber's claim.

The semantic interpretation of synthetic compounds depends on the co-indexation of an argument of the non-head element with an argument of the head element of the compound, according to the Principle of Co-indexation: "in a configuration in which semantic skeletons are composed, co-index the highest non-head argument with the highest (preferably un-indexed) head argument. Indexing must be consistent with semantic conditions on arguments, if any" (Lieber 2009: 96).

She considers the item *burrito assembler*. For this compound, the skeleton is the following:

[+ material ([$_j$])] [+ material, dynamic ([$_i$], [+ dynamic ([$_i$], [$_j$])])]
burrito *er* *assemble*

The presence of an overt affix, *-er*, places no special semantic demands on its argument. The Principle of Co-indexation co-indexes the argument of *-er* with the highest argument of the verb *assemble*, namely [$_i$] in the skeleton. Then, the first element of the compound preferentially links to the lower argument, [$_j$], yielding the object-oriented interpretation.

In synthetic compounds, a subject-oriented interpretation emerges in cases such as *city employee*, *wind erosion*. As for the first item, the suffix *-ee* requires its argument to be both sentient and non-volitional. Since the highest argument of the verbal skeleton is typically volitional, the argument of *-ee* links to the lower argument. Therefore, when compounded with another noun, that noun links to the yet unlinked highest argument, which turns out to be the subject. Thus, the subject-oriented interpretation arises. As for *wind erosion*, the subject-oriented interpretation is purely a matter of semantic incompatibility of the initial element, *wind*, with the lower argument of the base verb, namely the object of *erode*.

As shown here, the difficulty to get a subject-oriented interpretation in synthetic compounds is the result of the Principle of Co-indexation. The subject-oriented interpretation requires "either that the base verb of the second element have a specific sort of specific diathesis or that encyclopedic information about the first element precludes the expected indexation" (p. 137). Following the same reasoning, Lieber analyzes NDVCs. She considers the compound *dog attack*, whose skeleton is the following:

[+ material, dynamic ([$_i$])] [+ dynamic ([$_i$], [])]
dog *attack*

The Principle of Co-indexation favors the highest non-head argument to be linked to the highest argument of the head, which is, in this case, the subject argument. Basically, since there is no intervening overt affix, the first argument of the verb is un-indexed when merged with *dog*. Thus, the subject-oriented interpretation arises as a default result of co-indexation. However, there are cases in which NDVCs lead to an object-oriented interpretation. It is the case of the compound *ball kick*. The verb *kick* typically requires its first argument to be sentient. Thus the skeleton would be the following:

[+ material ([$_i$])] [+ dynamic ([$_{sentient}$], [$_i$])]
ball *kick*

The same observations hold for NDVCs with a prepositional object-oriented NDVCs like *washbasin*.

[+ dynamic ([$_{\text{sentient}}$], [IN ([$_{i}$])]] [+ material ([$_{i}$])]
wash *basin*

Going back to the question raised by Lieber, concerning the reason why NDVCs and synthetic compounds differ in their interpretation, Lieber suggests that synthetic compounds, contrary to NDVCs, carry an overt affix, which has already bound an argument of the base verb at the time of compounding. Since, according to the Principle of Co-indexation, the default process is to bind the highest non-head argument to the highest un-indexed head argument (assuming semantic compatibility), the highest argument is frequently already bound in the second element of synthetic compounds. On the contrary, as for NDVCs Lieber assumes that the skeleton of the verb (type 1) or the conversion noun (type 2) has no prior indexing at the time of compounding. Thus, the default indexing process expected according to the Principle of Co-indexation occurs, giving rise to the subject-oriented interpretation.

These findings lead Lieber to propose an implementation of the classification of compounds given in Scalise & Bisetto (2009). Lieber suggests that subordinate endocentric compounds should be divided into two types, synthetic and NDVCs, and that each of these can, in turn, be divided into three categories: subject-oriented, object-oriented, and prepositional object-oriented.

The whole chapter is an impressive work that can serve as *exemplum* to any researcher. Lieber is able to mix together the analytical sharpness of theoretical approaches, the breadth of descriptive and corpus studies, and the clarity of textbooks. The only aspect to be remarked is the lack of cross-referencing with the other papers of the volume. For instance, the author proposes that synthetic compounds have an overt affix, which has already bound an argument of the base verb at the time of compounding; that is to say that, in her view, derivation occurs before compounding. Even if shareable, this point is questionable. In fact, Angela Ralli (pp. 57-73) tempts to suggest that the order of application of the two processes, i.e. derivation and compounding, is not always the one advocated by Lieber. Although the evidence brought by Lieber supports the order derivation > composition, a few words commenting on Ralli's position could have been added (cf. §5.2.).

6. The syntax-morphology interface

Since compounds might be considered halfway between morphology and syntax they pose a challenge in deciding whether their formation is due to the syntactic module or to the morphological one. In the late 1960s and early 1970s, disagreements involving the nature of the Word Formation component and the Lexicon provided the background for the emergence of two radically different trends within generative grammar: that of Generative Semantics on the one hand, and that of Lexicalism on the other hand. At the time, the main issue regarded the appropriate constraining of the grammar, and whether an independent, list-like lexicon is more or less costly than an extremely powerful syntax, in which transformations could derive syntactic and morphological structures from unique semantic representations. To a large extent this issue has reemerged in the mid 1980, and is now raised again in the volume under review, especially in its first section, *Delimiting the field* (pp. 21-73): is word formation an independent module, subject to restrictions of its own, or should it be subsumed under syntax, obeying syntactic restrictions which are independently motivated?

Roughly speaking, there are two contrasting views on how complex words are formed. Either there is a morphological module, or submodule, with generative capacities that is responsible for word formation (a), or it is syntax that, as well as being responsible for deriving complex phrases, also derives morphologically complex items (b).

(a) For those who believe in the existence of an independent word formation component, such as the morphological module or submodule, another issue must be resolved: how is the interaction between such an independent word formation component and the syntactic module to be characterized? Proponents of an independent word formation component must show that such a component includes operations and constraints that cannot be reduced to independently motivated syntactic conditions. Moreover, they must show that an independent word formation component with its restrictions allows for a range of phenomena that cannot otherwise be accounted for.

(b) Proponents of exclusively syntactic word formation, on the other hand, must do the opposite: they must provide a way of accounting for the richness of word formation phenomena, without appealing to any syntactic processes which are not otherwise motivated.

The book by Scalise & Vogel supports the independent word formation component: “there is evidence in favor of a basic framework in

which morphological facts are handled by a morphological module, or submodule, of the grammar" (p. 4). That is to say that not only is there an independent word formation component, but its interaction with the syntax is severely limited. This claim is in line with Anderson who states that "the syntax neither manipulates nor has access to the internal structure of words" (1992: 84), or Ackema & Neeleman (2004) who propose that the structure of complex words is invisible to syntax since syntax builds up only the host structure and morphologically complex words are inserted into this structure.

The account will be organized as follows. In § 5.1, I will deal with 'The role of syntax and morphology in compounding' by Ackema &Neeleman (henceforth A&N). In § 5.2, I will address the issue regarding the connection between derivation and compounding dealt with by Angela Ralli in her paper 'Compounding versus derivation'.

6.1. Syntax and Morphology as submodules of a unique system

In order to grab the meaning of their proposal, A&N begin the paper showing the disadvantages of a mere syntactic approach to compounding, such as the one proposed by Harley (2009). In a syntactic approach, there is assumed to be a syntactic mechanism, such as head movement, that raises the head Y in a syntactic structure to the higher head X and that the resulting X-Y complex can be a complex word. However, A&N demonstrate that this proposal leads to various problems. The main problem is that, without any further modifications of the theory, given a phrase such as [a fan_{X} [of loud music]$_{YP}$], we expect to find also **a music fan of loud*. In fact, head movement as invoked by a mere syntactic approach should not be blocked, according to A&N's viewpoint. However, we do not find **a music fan of loud*.

On this point, I would like to make a brief note in defense of Harley (2009)'s approach. Harley assumes that the feature, which drives the incorporation of noun phrases, is Case-related. Given that, according to Harley, *of* emerges as a Last Resort operation to realize the inherent case of the argument, it can be assumed that since *music* has already received its case from *of*, there would be no reason for movement. Thus, object movement would be blocked. On the other hand, when there is no *of*-insertion, we find *a loud music fan*, where movement is motivated for Case-checking. Hence, the impossibility of extracting the nominal head from the *of*-phrase would be due to Case-checking reasons, and thus it is reduced to independently motivated syntactic conditions.

Another argument against the idea that syntax is responsible for compounding is based on the fact that the complexes created by head movement and compounds have different properties in the same languages. The two authors recall the example of verb clusters in Germanic OV languages. In these languages, the verb clusters differ from compounding with respect to the position of the head, always on the right for compounds, sometimes on the left in verb clusters, and to the possible inflection on the non-head, that has to be bare in compounds and must carry non-finite morphology in verb clusters.

Even if someone could adopt this solution, this again would undermine the idea that compounding is dealt with by independently motivated syntactic processes. In contrast, if we assume that compounding is derived by a morphological component, as A&N propose, all these problems would not arise. However, saying that syntax is not directly involved in compounding does not mean that syntax does not play a role in this process: "the syntactic module and the morphological module can be in competition when it comes to the privilege of combining a head and its dependent" (p. 24). The idea sketched in A&N's paper is that syntax and morphology compete for the privilege of combining categories into larger hierarchical structures. In non-polysynthetic languages, syntax beats morphology when all else is equal: "all else is equal means, first, that projections of the same categories merge, and, second, that the semantic relationships between these projections is identical" (p. 27). Since syntax and morphology are independent generative systems, since syntactic generation of structures is unmarked with respect to morphological generation, since complex lexical items can be underspecified with regards to their locus of realization, the competition between the two modules arises in this situation (p. 27):

> "Let's α_1 and α_2 be syntactic representations headed by α. α_1 blocks α_2 iff
> (i) In α_1 (a projection of) α is merged with (a projection of) β in syntax, while α_2 (a projection of) α is merged with (a projection of) β in morphology, and
> (ii) the semantic relation between α and β is identical in α_1 and α_2."

As an instance the morphological structure $[\beta\ \alpha]_{\alpha}$ will be blocked by the syntactic structure $[\alpha\ [\beta]_{\beta P}]_{\alpha P}$ if the semantic relation between α and its complement β is the same in both the structures. Let's go back to the analysis of synthetic compounds proposed in (b). In one instantiation, α is a verb and β is a nominal category functioning as its internal argument. Since $[\alpha\ [\beta]_{\beta P}]_{\alpha P}$, i.e. [*drive a truck*], blocks $[\beta\ \alpha]_{\alpha}$, i.e. [*truck drive*], it follows that the compound verb *to truck-*

drive is ruled out. On the other hand, the structure *driver of a truck*, namely $[\gamma\ [\alpha\ \gamma]\ [\beta]_{\beta P}]_{\gamma P}$ – where γ stands for the affix that merges with a projection of β (the noun) -, does not block the structure *truck driver*, i.e. namely $[[\beta\ \alpha]_{\alpha}\ \gamma]_{\gamma}$ – where γ merges with a projection of α (the verb). Hence, the synthetic compound *truck driver* can co-occur with the syntactic phrase *driver of a truck*. Summing up, the fact that in N-V compounds N is not the internal argument of V depends on the syntactic phrasal counterpart. On the other hand, we can conclude that synthetic compounds are not blocked because they do not compete with a syntactic phrase, as a consequence of a different order of merger.

In my opinion, this is one of the most valuable chapters in the volume, both in terms of its theoretical contribution and the methodology employed. A&N present their proposal in a clear, convincing and reader-friendly way, using wide evidence from different languages to prove their statements. This approach is also well supported by Melloni & Bisetto's analysis of Slavic and Romance parasynthetic compounds.

6.2. Compounding and derivation

Traditionally it has been claimed that compounds, as well as derivative words, are formed in the morphological module (cf. among others Downing 1977; Di Sciullo & Williams 1987). However, there are proposals, such as the one put forward by Anderson (1992), which consider compounding to be a different mechanism from derivation, since derivative items, in contrast to compounds, lack word internal structure. Recently the traditional view according to which both processes are instances of word formation and should be accounted for by the same rule pattern has come up again (Probal, Ford & Singh 2000). Furthermore, there exists a third, weaker view arguing that derivation and compounding are not sharply distinguished, and that their boundary can be permeable in both ways (Ten Hacken 2000; Booij 2005).

Ralli's paper supports the idea that both derivative formations and compounds are handled by the morphological domain. The data she uses come from Standard Modern Greek and its dialects. The application and ordering of compounding and derivational processes, as well as the status of certain items as words or affixes in different dialects, lead the author to conclude that the observed patterns can be accounted for only if derivation and compounding are interspersed. Ralli shows that all the criteria used in order to distinguish com-

pounding from derivation are not without problems. I will recall only one example treated by the author. A possible criterion would be the identification of the units involved in a morphologically complex item. It is usually assumed that compounding involves free items, which may appear either as left-hand or right-hand constituents. On the contrary, derivation has to do with affixes, which are bound elements obeying strict positional restrictions. Nevertheless, there are so-called neoclassical compounds, such as *philharmonic*, in which the categorial status of the item *phil-* is not very clear in that it shares properties of both affixes and lexemes.

Since there is no clear demarcation between the two processes and they intermingle and constrain each other, Ralli concludes that there is no reason why they should be treated in different grammatical components. Her main arguments are based on the following issues: (i) the order of application of the two processes; (ii) the existence of morphological constraints; (iii) the status of affixoids.

(i) The order of application of the two processes

In a level/strata-based model, it has been claimed that the level of compounding follows that of derivation (Mohanan 1986). This claim could be used as an argument for assigning compounds to the syntactic module. However, Ralli shows that there is no linear ordering between the two processes: there are cases in which derivation precedes compounding, and, on the other hand, there are instances of derivational affixes attached to compound formations. In Modern Greek, derivational affixes can appear within compounds.[10] Ralli (1988) has claimed that in Modern Greek most derivational processes occur before compounding. One could predict that derived items should generally appear as constituents of compound words. This prediction is borne out as far as the second element of a compound is concerned, since several times it is a derived item:

(8) *mikro-varkada* ?*mikrovarka*
mikr-o-vark-ad-a
little-LK-boat-DAFF-INFL
'little boating'

One could safely claim that the second constituent, *varkada*, has been derived before compounding, since the formation *mikrovarka* sounds peculiar.[11]

However, Modern Greek provides a considerable number of counterexamples to the derivation > compounding order. Ralli considers instances such as *pederastia* 'pederasty' based on the compound noun

pederastis plus the derivative affix *-ia*. There is no actual **erastia* (i.e. a derived item) which would have justified a possible order according to which derivation occurs before compounding (p. 67). On the contrary, the existence of the compound *pederastis*, formed by *ped* 'child' + *erastis* 'lover', indicates that, in *pederastia*, compounding precedes derivation.

Even if this is a very good argumentation, I am not totally convinced. If one considers that in *pederastis* the second item *erastis* is attested as a derived noun (since ancient Greek ἐραστής), this can be interpreted again as a case in which derivation occurs before compounding, synchronically speaking. *Pederastis* is the base for the new compound *pederastia*, already attested since ancient Greek. Thus, one could assume that in Modern Greek *pederastia* is not considered as a compound, but it is a lexicalized item, being analyzed as a noun formed by the stem *pederast-* plus a derivative suffix. That is to say that *pederastis* has to be considered the real compound, in which derivation occurs before compounding, and then *pederastia* is a lexicalized word plus a derivative suffix. This case is very similar to the Italian item *pomodoro* 'tomato'. It is known that *pomodoro* is a compound of *pomo* 'apple' *d'oro* 'golden'. This compound has gone through a lexicalization process and is now analyzed as a stem *pomodor-*, with the plural suffix not on the original stem *pom-* (*pomi*), but on the right edge of the word, *pomodori*. Moreover, from the stem *pomodor-*, a new word has been created, *pomodor-ata* 'blow with tomato'. I think that no one could say that compounding precedes derivation neither in *pomodori* or in *pomodorata*. What diachrony suggests is that at some point the compound has become a lexicalized word.

In order to defend her idea that compounding can occur before derivation, she looks at certain compound verbs, produced by conversion, i.e. implying a nominal compound converted into a verb without the presence of an overtly realized derivational suffix (p. 67):

(9) *anthoforó*
anth-o-for-ó
flower-LK-carry-INFL
'carry flowers'

The verb *anthoforó* is not a primary compound formation (Ralli 2008), since it is derived by conversion on the basis of the nominal compound *anthofóros* 'flower-carrier'. This nominal compound is based on the combination of two stems, namely the stem of *anth-* 'flower' and a deverbal one *for-* derived from *fer-* 'to carry'. Ralli shows that strong evidence corroborating the suggestion that the verb *anthoforó* is based on the nominal compound comes from diachrony: examples

of the nominal compound are attested before those of the verbal compound. On the basis of such evidences, the author concludes that "there is no clear-cut proof about an extrinsic order of application of the two processes, since derived items can be created before or after compounds" (p. 68). Again, even if her main claim is *prima facie* really convincing, her argumentation needs to be more detailed. In fact, we run into the same problem faced before with the *pederastia* example. If one considers the nominal compound *anthofóros*, derivation occurs before compounding. The item *fóros* derived from *fer-* has been attested since ancient Greek φορός (already in Aristotle), as well as the item ἀυθοφόρος 'who produces flowers; who carries flowers'. Thus, the second item is firstly derived and then is merged as part of a compound. What is crucial, however, is that also the verbal compound ἀυθοφορέω 'produce flower; carry flower' was already attested since ancient Greek. Even more salient is the fact that also the item φορέω 'carry; transport' is attested. Thus also the verbal compound is formed in the same way as the nominal one. We can say that in ancient Greek all these items are attested and can stand as words: as for ἀυθοφόρος, both ἄυθος 'flower' and φορός 'who carries flowers' occur as words; as for ἀυθοφορέω, both ἄυθος 'flower' and φορέω 'carry, transport' are attested as independent words. Contrary to Ralli's claim, diachrony suggests that both the compounds are independent formations, in which again derivation comes before compounding. If one considers ancient Greek synchronically, also synchrony confirms the hypothesis that derivation occurs before compounding. Going back to Modern Greek, it can be suggested either that *anthoforó* 'carry flowers' is based on the ancient Greek ἀυθοφορέω 'produce flowers; carry flowers' or that *anthofor-* is not felt as a compound anymore, but is rather considered as a lexeme, and, then, derivation occurs. In conclusion, Ralli's arguments to prove her claim that derivation may occur after compounding are not deprived of problems.

(ii) The existence of morphological constraints.

Ralli makes specific reference to a constraint that affects the internal form of Greek compounds by prohibiting derivation suffixes to appear as parts of the first stem components. The prediction that derivation occurs before compounding does not seem to hold as far as the first constituent is concerned. However, the author states that the non-overt realization of derivational material inside the first component of Modern Greek compounds is not related to the order according to which the two processes occur, but is due to independent reasons, namely the existence of the Bare-stem Constraint.

Overtly, derivational suffixes do not usually appear within compounds, since their first member has the form of a bare stem. Even if derivational suffixes are not overtly attached to the first constituent, their semantics plays a crucial role for the semantic composition of the compound: *krif-o-mil-o* 'lit. secret speak, speak in secret', where the form *krif* resembles a noun stem, but is interpreted as an adverb. Ralli & Karasimos (2009) have argued that the non-appearance of derivational suffixes attached to the first component of a compound depends on the Bare-stem Constraint. This constraint requires the two basic constituents to be tied by a strong structural bond. According to the two authors, the bond between the two components of a compound is better guaranteed if the first stem is as bare as possible.

Although the basic claim and the real effect of the Bare-stem Constraint are convincing, I do not understand on which bases Ralli & Karismos, quoted also in Ralli's paper, can affirm that the bond between the two components is better ensured if the first stem is as bare as possible. Thus, I am not completely satisfied with the reasons that motivate the activation of the Bare-stem Constraint. However, I definitely agree with the claim that even if the derivational suffix is not overtly realized, its semantics is there. This, according to Ralli, demonstrates the close interaction between derivation and compounding, since the structure of derivative items seems to be accessible to compounding. Thus, the Bare-stem Constraint presupposes that "the process of compounding has access to the internal structure of the derived items which participate in it, and compounding affects structures produced by derivation, since it masks the appearance of derivational material, which may be part of the first compound component" (p. 64).[12]

(iii) The status of affixoids

In the literature, it is claimed that affixoids play a crucial role in showing the non distinct boundaries between derivation and compounding, since the border between the two processes has been crossed many times in the history of a language (Olsen 2000; ten Hacken 2000). The contribution Ralli gives is very innovative: she uses dialectal evidence to discuss the limitations of the two processes. She shows that a clear-cut lexeme in one dialectal system may behave as an affixoid in another, while it may have acquired the status of an affix in yet another one. This dialectal evidence provides a synchronic confirmation to the development of borderline cases between compounding and derivation. She investigates the dialectal treatment of an item, which is an autonomous word in Standard Modern Greek (henceforth, SMG), a prefix in Cretan (C), and an

affixoid in Lesbian, Aivaliot and Moschonisiot (LAM). The item in question is the directional adverb, *isja* 'straight', which can be used as a modifier in verbal phrases (a), as well as in locative adverbial ones (b), where it bears an intensifying connotation:

(10) SMG
a. *vale* *to* *isja*
put it straight
'put it straight'

b. *ela* *isja* *pamo*
come straight up.there
'come straight up there'

Dimela (2005) has argued that this adverb has been reduced into a prefix in C, with a purely intensifying function.[13]

(11) *sojerno*
so-jerno
very-become old
'become very old'

The prefixal status of *sjo-/so-* is shown by the fact that, on synchronic grounds, native speakers make no link between its initial lexical meaning of 'straight' and the actual intensifying meaning.

In LAM, *is(j)a* behaves differently. Ralli considers the following examples.

(12) a. *sapera*
sa-pera
INTENS-away
'far away'

b. *saki*
sa-iki
INTENS-there
'over there'

The bound element *sa-* acts as an intensifier of the locative adverbial meaning. In contrast to Cretan native speakers, LAM speakers are aware of the relationship that holds between *sa-* and *is(j)a*, which under the form *isa* still exists as an autonomous word, and can also act as a verbal modifier. Compared to the original *is(j)a*, the form *sa-* has undergone phonological attrition, namely the deletion of the initial /i/ and

the internal loss of the semivowel /j/. Although there is phonological erosion, Ralli & Dimela (to appear) argue that the fact that *sa* in LAM is still semantically transparent casts doubt on the hypothesis that *sa-* is a prefix.[14] If *sa* is a lexeme, the instances (12a-b) are examples of compounds. However, this hypothesis runs against the fact that *sa* combines only with locative adverbs. As a matter of fact, categorial restrictions do not usually characterize compounds. Ralli concludes that, since *sa* cannot be considered either as a prefix or as a lexeme, "one may suppose that it is in the process of losing its word independence, and thus, can be considered as a kind of prefixoid" (p. 72). Summing up, the SMG *isja* is considered as a lexeme, i.e. as an adverb; the Cretan *s*(*j*)*o* has a prefixal character; the LAM *sa* has an unclear status.

The existence of problematic cases, such as the Greek adverb *is*(*j*)*a*, supports Bauer's idea that items involved in derivation and compounding can be placed on a cline (cf. Bauer 2005; Bybee 1985 for the notion of cline). In these terms, the SMG item would be situated at one of the poles, the C one would be at the opposite pole, while the LAM item would be placed in between.

To conclude, Ralli shows that derivation and compounding interact in several ways. She stresses that the main contributions of her chapter are the following:

– As for the order of application of the two processes, "crucial evidence has demonstrated that there is no extrinsic ordering between the two processes, since derivation may occur before or after compounding" (p. 72);
– As for the domain in which compounding and derivation have to be treated, "it has been argued that derivation and compounding should not be treated as separate processes of different grammatical domains, but as processes of the same domain, i.e. morphology" (p. 73);
– As for evidence coming from dialectal data, it shows "that the border of the two processes is not clearly distinct and that it can be easily crossed" (*ibid.*).

As shown, evidence in favor of the claim that there is no extrinsic ordering between the two processes is not so strong. Recalling my arguments, the main problem concerning Ralli's claim has to do with the possibility of treating as a lexicalized item the compound that should demonstrate that derivation occurs after compounding. More convincing however is dialectal evidence. Dialectal data show that there is a cline between derivation and compounding, from a more lexical pole to a more morphological one. Of course, mixed categories are found showing that a clear-cut demarcation line between derivation processes and

compounding is not easy to draw. The same conclusion is reached by Booij (pp. 93-107) within the Construction morphology perspective. One of the issues addressed in his paper is in fact the shift from compounding to derivation, where the author concludes that there seems to be a cline for such bound morphemes ranging from a more lexical to a more grammatical meaning. However, the two authors do not make reference to each other's work, and, again as in the case of head position, this lacking of cross-referencing makes reading difficult.

Going back to the more general question, namely the generative module responsible for derivation and compounding, Ralli's paper attempts to answer that both the processes have to be accounted for within a morphological domain. However, the evidence brought up by the author is not without problems.

Besides these observations, in all, the paper is very impressive for both the interesting and rather unknown data treated and for the scientific line of reasoning that makes the reader easily follow the analysis. Furthermore, this is the only chapter inside the first section that offers a very detailed overview of the existing literature.

7. Concluding remarks

The volume under review is a successful attempt to draw a clear picture of compounding from different areas of grammar. It brings together contributions based on a large number of diverse languages as well as issues in sign language, language acquisition, and quantitative and typological analytical approaches. The wide range and the depth of the extent of the topics dealt in this volume make it a basic source reference for future researches, on both compounding and, more in general, on theoretical and applied linguistics. Therefore, in choosing to concentrate in depth on just a few aspects and papers, I have run the risk of overlooking others important contributions to the current debate. However, I hope I have given a clear idea of the importance of operating on compounding in order to better understand the architecture of grammar. The fact that further refinement seems to be needed on some specific points does not diminish the merits of Scalise & Vogel's volume. In my opinion, this book serves its purposes in an excellent way.

In all, the book is carefully edited and the chapters contain appropriate cross-referencing, except for some points that I would like to highlight.

The first point regards the classification problem. In the introduction the two authors propose the classification found in Scalise

& Bisetto (2009), without adding Lieber's and Arcodia, Grandi & Wälchli's findings. According to the latter authors (pp. 177-197), coordinate compounds can be subdivided in two types: hyperonymic coordinating compounds, and hyponymic coordinating compounds. This division can account for typological data and areal distribution. On the other hand, Lieber suggests that subordinate endocentric compounds should be divided into three categories: subject-oriented, object-oriented, and prepositional object-oriented.

The other point has to do with headedness. Both Scalise & Fábregas (pp. 109-125) and Booij (pp. 93-107) arrive at the same conclusion: there seems to be a canonical head position in each compound type in a given language.

The last point regards the derivation-compounding order. As I have already pointed out, there is a lack of cross-referencing between Ralli's, Booij's and Lieber's papers.

Since there are no precise cross-references inside the chapters, it would have been more useful to have the whole picture drawn in the introduction.

The list of abbreviations is very detailed. In general, in the master list of references consistent adherence to the style sheet is observed. However, in both the text and the list of abbreviations and references, a few misprints, omissions and inconsistencies can be found. Since these do not interfere with the proper understanding of the volume, I do not go into a detailed description here, and I will privately send a complete list to the authors.

Address of the Author

Emanuela Sanfelici, Laboratorio di Linguistica, Scuola Normale Superiore, 56126, Pisa <emanuela.sanfelici@sns.it>

Notes

[1] As for the bibliographical references inside the text, I use the following system: whenever I write only the page, not preceded by the author and the year – for instance (p. 10), that means that I am quoting the author of the paper I am discussing and that this paper is from the volume under review; in all other cases, both the author's name and the year of publication will be mentioned. As for the abbreviation system, I basically follow the method used in the book. I add a list of abbreviations as follows.
A = Adjective; A&N = Ackema & Neeleman; C = Cretan; DAFF = Derivational affix; INFL = Inflection; INTENS = Intensive; It. = Italian; LAM = Lesbian, Aivaliot and Moschonisiot; LK = linker; N = Noun; NDVC = Non-affixal (de)verbal compounds;

OV = Object-verb; PL = Plural; P = Preposition; R = Relation; SG = Singular; SMG = Standard Modern Greek; > = follows.

[2] The overview of the main challenges demonstrates that understanding the linguistic facts relating to compounds "requires continuous refinement of hypotheses, contingent on analyses of an increasing body of data" (p. 8).

[3] Prototypically, compounding (as well as other derivational operations) produces lexemes, although they may be non-canonical instances of words according to one or more levels of linguistic analysis. In many languages, compounds either behave like simple or derived words, or they display special characteristics that distinguish them from syntactic objects, such as *sandhi* phenomena. They may also involve the definition of specific prosodic domains: compounds may exhibit particular stress patterns (cf. Nespor 1999). From a morphological viewpoint, compounds (especially lexicalized ones) can carry inflectional markers in the canonical position:

It.	*posacenere*	*posaceneri*
	posa-cenere	posa-ceneri
	pose-ash$_{SG}$	pose-ash$_{PL}$
	'ashtray$_{SG}$'	'ashtray$_{PL}$'

In many cases, however, inflection occupies a non-canonical position:

(2) It.

uomo rana	*uomini rana*
man frog	men frog
'frogman$_{SG}$'	'frogman$_{PL}$'

Mostly, compounding may form canonical lexical items. However, in other cases, non-canonical lexemes can be produced, which do not constitute single phonological or morphological words.

[4] These references are not quoted in Montermini's paper.

[5] For a wide and detailed overview/review of the previous accounts I refer back to Scalise & Bisetto (2009: 50-71).

[6] As pointed out by the authors themselves, this classification leaves room for further subcategories where, for example, the lexical categories of the words play a role. As an instance, see the implementation by Lieber (§ 5.1).

[7] Synthetic compounds are defined by two criteria: the first criterion considers them equivalent to 'deverbal', thus 'secondary', hence being in opposition with root (primary) compounds; the second one affirms that in synthetic compounds the non-head constituent satisfies the argument requirements of the head. As Scalise & Bisetto (2009) demonstrate, the labels 'synthetic' and 'root' are language specific and can create terminological problems. In fact, these two notions could not be adequately extended to languages such as Romance languages, in which terms like 'root' did not seem to apply conveniently (cf. Bisetto 2003).

[8] In the notion of argument, Lieber includes not only subject and object, but also semantic arguments like locations, instruments, and paths.

[9] In Lieber (2004), the author has argued that items like *to saddle*, *to jet* are formed by re-listing: nouns are converted into verbs by virtue of being re-entered in the mental lexicon with any kind of available verbal skeleton. This may suggest that also verb-to-noun conversion could be analyzed in the same way, as a kind of zero affixation, that is to say addition of semantic structure without concomitant addition of phonological structure. However, as Lieber (this volume) argues, there are some objections, among which the danger of proliferating phonologically null affixes, and the inability to tell whether the proposed zero morpheme is prefixal or suffixal.

[10] With respect to derivation, Ralli concentrates only on suffixation, since the derivational status of several prefixes is not a clear-cut case (Štekauer 2005).

[11] This claim is also supported by stress position (Nespor & Ralli 1996): when the right hand slot of the compound is filled by a derived item, the usual application of

the antepenultimate stress rule is blocked, and the formation displays the stress of the derived items. However, Ralli suggests that the absence of ?*mikrovarka* could be due to independent reasons. A plausible solution would be to propose that its creation is blocked by the presence of the most frequent diminutive formations *varkaki* (neuter) and *varkula* (feminine), which also mean 'little boat'. Thus, one could assume that a Blocking Constraint of the type proposed by Aronoff (1976) may apply to compounds in order to prohibit formations expressing the same meaning with certain derivative ones, which are based on the same root.

[12] Ralli supports the postulation of the Bare-stem Constraint with evidence from verbal *dvandva* compounds (see also Ralli 2008).

[13] It has two forms: *sjo-* in Western Cretan, and *so-* in the eastern part of the island.

[14] Furthermore, Ralli points out the fact that these phonological changes are due to general phonological laws, which apply to several Modern Greek dialects (see Newton 1972).

Bibliographical References

Ackema Peter & Ad Neeleman 2004. *Beyond Morphology*: *Interface Conditions on Word Formation*. Oxford: Oxford University Press.

Anderson Steven 1992. *A-morphous Morphology*. Cambridge (UK): Cambridge University Press.

Bauer Laurie 2005. The borderline between derivation and compounding. In Dressler *et al*. 2005. 97-108.

Bauer Laurie & Antoinette Renouf 2001. A corpus-based study of compounding in English. *Journal of English Linguistics* 29: 2. 101-123.

Bisetto Antonietta 2003. Note su alcuni composti nominali dell'italiano. In Bisetto Antonietta *et al*. (eds.). Scritti di morfologia in onore di Sergio Scalise in occasione del suo 60° compleanno. Cesena: Caissa Italia. 29-46.

Booij Geert 1998. Phonological output constraints in morphology. In Kehrein Wolfgang & Richard Wiese (eds.). *Phonology and Morphology of the Germanic Languages*. Tübingen: Niemeyer. 143-163.

Booij Geert 2005. *The Grammar of Words*: *An Introduction to Linguistic Morphology*. Oxford: Oxford University Press.

Bybee Joan 1985. *Morphology*. Amsterdam/Philadelphia: John Benjamins.

Bybee Joan & Jean E. Newman 1995. Are stem changes as natural as affixes? *Linguistics* 33. 633-654.

Dimela Eleonora 2005. *I prothimatopoiisi stin Kritiki dialecto*. *I periptosi ton sin-*, *sjo-*, *so-*. MA thesis. University of Athens. Ms.

Di Sciullo Anna Maria & Edwin Williams 1987. *On the Definition of Word*. Cambridge (Mass.): MIT Press.

Dixon Robert & Alexandra Aikhenvald (eds.) 2002. *Word*: *A Cross-linguistic Typology*. Cambridge (UK): Cambridge University Press.

Downing Pamela 1977. On the creation and use of English compounds. *Language* 53. 810-842.

Gaeta Livio & Davide Ricca 2009. Composita solvantur: Compounds as lexical units or morphological objects? *Italian Journal of Linguistics* 21: 1. 35-70.

Guevara Emiliano & Sergio Scalise 2008. Searching for universals in com-

pounding. In Scalise Sergio, Elisabetta Magni & Antonietta Bisetto (eds.). *Universals of Language Today*. Berlin: Springer. 101-128.
Harley Heidi 2009. Compounding in Distributed Morphology. In Lieber & Štekauer 2009. 129-144.
Haspelmath Martin 2002. *Understanding Morphology*. London: Arnold.
Katamba Francis 1993. *Morphology*. London: Macmillan.
Lieber Rochelle 2004. *Morphology and Lexical Semantics*. Cambridge (UK): Cambridge University Press.
Lieber Rochelle 2009. A lexical semantic approach to compounding. In Lieber & Štekauer 2009. 78-104.
Lieber Rochelle & Pavol Štekauer (eds.) 2009. *The Oxford Handbook of Compounding*. Oxford: Oxford University Press.
Marchand Hans 1969. *The Categories and Types of Present-day English Word-formation. A Synchronic-diachronic Approach*. Münich: Beck.
Mohanan Karuvannur Puthanveettil 1986. *The Theory of Lexical Phonology*. Dordrecht: Reidel.
Nespor Marina 1999. Stress domains. In Van der Hulst Harry (ed.). *Word-prosodic systems in the languages of Europe.* Berlin/New York: Mouton de Gruyter. 117-159.
Nespor Marina & Angela Ralli 1996. Morphology-Phonology interface: Phonological domains in Greek compounds. *The Linguistic Review* 13. 357-382.
Newton Brian 1972. *The Generative Interpretation of a Dialect. A Study of Modern Greek Phonology*. Cambridge (UK): Cambridge University Press.
Olsen Susan 2000. Copulative compounds. A closer look at the interface between morphology and syntax. *Yearbook of Morphology*. 279-320.
Probal Dasgusta, Alan Ford & Rajendra Singh 2000. *After Etymology*: *Towards a Substantivist Linguistics*. München: Lincom Europa.
Ralli Angela 1988. *Eléments de la morphologie du grec moderne*: *La structure du verbe*. PhD dissertation. Université de Montréal. Ms.
Ralli Angela 2008. Compound markers and parametric variation. *Language Typology and Universals* 61. 19-38.
Ralli Angela & Eleonora Dimela. To appear. On the borderline between prefixation and compounding: the *sa-adverbs* in the dialectal varieties of Lesbos, Kydonies (Aivali) and Moschonisia. In Janse Mark *et al*. (eds.). *Proceedings of the III International Conference on Modern Greek Dialects and Linguistic Theory*. Nicosia: Kykkos publications.
Ralli Angela & Athanasios Karasimos 2009. The role of constraints in compound formation: the case of bare-stem constraint. *Lingue e Linguaggio* 8. 53-74.
Selkirk Elisabeth 1982. *The Syntax of Words*. Cambridge (Mass.): MIT Press.
Scalise Sergio & Antonietta Bisetto 2009. The classification of compounds. In Lieber & Štekauer 2009. 49-82.
Štekauer Pavol 2005. Compounding and affixation. Any difference? In Dressler *et al*. 2005. 151-159.
Stump Gregory 2001. *Inflectional Morphology. A Theory of Paradigm Structure*. Cambridge (UK): Cambridge University Press.
Ten Hacken Pius 2000. Derivation and compounding. *Morphology*. 349-359.