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Lexical deconstruction

Review of Giegerich, H. (2015). *Lexical structures: Compounding and the modules of grammar*. Edinburgh Studies in Theoretical Linguistics (Vol. 1). Edinburgh: Edinburgh University Press.

Overview

In this slim volume, Professor Giegerich sets out to test the theory of lexicalism (Chomsky 1970) with reference to English constructions consisting of a head noun preceded by an attributive modifier, e.g. *beautiful picture*, *heavy smoker*, *dental decay*, *toy factory*, *Edinburgh student*, *party leader*. Conventionally, some of these constructions are classed as noun phrases, while others are regarded as compound nouns. According to lexicalism, the two classes are generated by separate modules of the grammar: one module, 'the lexicon', is responsible for generating complex words, while another module, 'the syntax,' is responsible for generating phrases. If the theory is correct, we might therefore expect that compound words, products of the lexicon, would be clearly distinguishable from phrases, products of the syntax. Giegerich asks to what extent this distinction is really discernible within the domain of English nominals. His conclusion, spelt out in the book's preamble, is that 'there is no compound-phrase distinction just as there is no lexicon-syntax divide' (p. viii). However, the failure to find distinct categories does not lead Giegerich to conclude that the theory is falsified. Rather, he suggests a development of the theory whereby modules 'overlap'.

The book's content is largely drawn from the author's previous publications, which are brought together and developed in support of the central thesis. Chapter 1 outlines the characteristics of attributive modification, as exemplified by prototypical, adjectivally pre-modified noun phrases. Special significance is given to a distinction between 'ascriptive' and 'associative' attribution, which Giegerich regards as being typical of (though not confined to) the syntax and the lexicon, respectively. Chapter 2 discusses associative attribution in more depth; the author contends that certain constructions consisting of an 'associative adjective' plus noun, simultaneously have some properties typical of the lexicon and other properties typical of the syntax. Chapter 3 reviews what is known about stress in English constructions consisting of two or three nouns, arguing that, while left-stressed noun-nouns are always compounds, right-stressed noun-nouns are not always phrases. Chapter 4 constitutes a brief discursion into affixation and the theory of lexical phonology, according to which the lexicon is divided into sub-modules known as strata. It is shown that the theory cannot account for the facts of English unless the strata somehow overlap. Finally, in Chapter 5, Giegerich comes back to the original question: namely, the purported divide between the lexicon and the syntax. He reviews a number of criteria that have been claimed to distinguish between English phrases and compounds, and

for each one shows why it is inadequate. He concludes that, just as lexical strata must be allowed to overlap to save the theory of lexical phonology, so too must the lexicon and the syntax overlap if lexicalism more widely is to fit the facts.

Evaluation

One of the book's central ideas is that the distinction between English compound nouns and noun phrases, in so far as there is one, corresponds to a semantic distinction between associative and ascriptive attribution. Ascriptive attribution, exemplified by *beautiful picture*, involves ascribing a property (beauty) to an entity (the picture), while associative attribution, exemplified by *dental decay*, involves associating one entity (teeth) with another (decay). There are two problems with this argument. Firstly, Giegerich asserts that, although associative attribution is typical of compounds while ascriptive attribution is typical of phrases, both types of attribution can be found in both types of construction. But there is no clear account of how an associative or ascriptive compound is then distinguishable from a phrase with the same type of semantics. Secondly, the distinction between associative and ascriptive attribution is not always clear-cut. Giegerich's most explicit criterion is that only ascriptive attribution can be expressed predicatively: for example, the possibility of *this picture is beautiful* tells us that *beautiful picture* is ascriptive (pp. 25-26). Yet he also gives examples of ascriptive attribution that do not appear to satisfy this condition, e.g. *London taxi* (**this taxi is London*) (p. 17). It is unclear why association with London should be regarded as a property of a London taxi, but occurring in teeth should not be regarded as a property of dental decay.

Despite being problematic, the idea that the semantics of modified nominals falls into two broad classes is by no means unique. Fanselow (1981) categorised compound semantic relations as either 'basic' or 'stereotype', corresponding roughly to ascriptive and associative attribution respectively, and Bell (2015b) provides some larger-scale empirical evidence for this distinction. However, the statistical models presented in Bell (2015b) are also compatible with an analysis in which 'basic' and 'stereotype' (or 'ascriptive' and 'associative') represent end points on a continuum. In fact, Giegerich himself suggests that some adjectives may be more or less associative or ascriptive than others (p. 37). Such a gradient model of nominal semantics would explain why the author finds no one-to-one correspondence between type of attribution and other constructional properties, but would be more difficult to reconcile with a modular theory of language.

In the chapter on stress, our author sets up something of a straw man by asking whether stress distinguishes between English compounds and phrases, since there is already a significant body of literature showing beyond reasonable doubt that stress in English noun-noun constructions is a probabilistic rather

than categorical phenomenon (e.g. Plag et al. 2007). However, Giegerich not only makes the uncontroversial argument that compounds may have prominence on the right-most constituent, as well as the left, but also puts the less-established case that some phrases – though not noun-noun phrases – may have prominence to the left, as well as the right. His claim is that leftward stress is normal and non-contrastive in definite noun phrases with a restrictive attribute, e.g. *the well-prepared students* where only some of the students are well prepared (pp. 50-51). It is questionable, however, whether such a clear distinction can be drawn between contrastive stress and stress that results from restrictive semantics, since it could be argued that a restrictive attribute in itself represents an implied contrast. Giegerich actually defines the restrictive interpretation of *the well-prepared students* in terms of contrast: ‘those students who are well-prepared (*but not the others*)’ (p. 49; my emphasis). Nevertheless, he argues that such cases are not contrastive because contrastive stress can only occur in ‘parallel constructions’ such as *déporté, not éxporté* (pp. 48, 50), a claim he attributes to Bolinger (1972). There is some confusion of terms here. In fact, Bolinger (1961, 1972) differentiates between ‘contrastive stress’, which can shift the stressed syllable within a word, e.g. *déporté* vs *depórté*, and ‘contrastive accent’, which can shift the stressed word within a larger construction, e.g. *well-prepáred students* vs *well-prepared stúdents*; he makes no suggestion that the latter is restricted to a particular construction type.

Despite the inconsistencies outlined in the previous paragraph, I do not take issue with Giegerich’s main conclusion regarding phrasal stress, namely that leftward stress in phrases should not be seen as abnormal. Where I differ, is in the basis for this conclusion. Giegerich draws a distinction between ‘normal stress’ and ‘deliberate highlighting for emphasis or contrast’ (p. 52); he then argues that some cases of non-emphatic leftward stress in phrases are also non-contrastive and should therefore be regarded as normal. An alternative view, and my reading of Bolinger (1972), is that, at phrase level, contrastive stress is not abnormal. Rather, phrasal prominence, or ‘accent’ in Bolinger’s own terms, can be seen as ‘directly reflecting the speaker’s intent [so that] accented words are points of information focus’ (Bolinger 1972 p. 633). In the type of left-stressed phrases discussed by Giegerich, i.e. definite noun phrases with a restrictive attribute, the speaker intends that the adjective should convey both its own lexical semantics and also the implication ‘but not some other type’; it can therefore be seen as having an additional information load. Hence, leftward stress in such cases, i.e. stress on the adjective, follows naturally from the general tendency in language for more informative units to be accented (cf. Bell & Plag 2012, 2013); it is not necessary to invoke some exceptional ‘contrastive’ mechanism, even though the meaning is implicitly contrastive.

An idea that merits further investigation is the author's suggestion that 'stress doublets' reflect the associative-ascriptive distinction. These are modified nominals whose meaning is said to vary according to which constituent is stressed. For example, Giegerich claims that left-stressed *tóy factory* means 'factory for producing toys' and is associative, while right-stressed *toy fáctory* means 'factory that is a toy' and is ascriptive (p. 18). However, this argument is weakened by the fact that most of the examples are either recycled from previous literature or seem to rely only on the author's intuition. It is actually an open question whether these doublets receive systematically different interpretations; a small experimental study reported in Bell (2013) indicates that the situation is by no means as clear-cut as the literature suggests. More generally, it is known that speakers vary significantly, both in the stress they assign to noun-noun constructions (Bell 2015a) and in their interpretation of novel combinations (Wisniewski 1994). Giegerich's assertion that right-stressed *tooth brúsh* 'would denote a brush made out of a tooth' (p. 18) cannot be assumed to be true for any other speaker.

A recurring theme in the book is the theory of lexical integrity, according to which the constituents of phrases, but not the constituents of compounds, can participate independently of one another in 'syntactic' processes. In the early chapters, the author seems to attribute particular significance to the process of 'pro-one' anaphora, which he cites as indisputable evidence of 'syntactic origin' (p. 41). He suggests, for example, that if it is grammatical to say *a wooden bridge and a steel one*, then *steel bridge* must be a phrase (p. 63). In the final chapter, however, the argument is advanced that constraints against the pro-one construction are usually semantic rather than syntactic. For example, the alleged infelicity of **a plastic bottle and a milk one* is said to be due to a lack of parallelism in the semantic relations of *plastic bottle* and *milk bottle* (p. 104). The argument that *one* anaphora is fundamentally a semantic rather than a syntactic phenomenon is also laid out in considerable detail by Payne et al. (2013). These authors point out, amongst other things, that the *one* in question has the distribution of a single count noun – hence it can be used with an article, as in *a steel one*. Using corpus data, they demonstrate that English has no absolute constraint against single words, including compound constituents, acting as antecedents for anaphoric *one*. They further argue that the willingness of some linguists to regard such usage as ungrammatical is an effect of relative frequency: constructions in which *one* replaces a single noun are simply infrequent. All in all, it would seem unsafe to draw any conclusion about lexical integrity or morphosyntactic constituency on the basis of anaphoric *one*.

A still widely-accepted test for lexical integrity concerns modification: the theory of lexical integrity predicts that a compound's constituents should not be syntactically modifiable independently of one another. To falsify this prediction,

and thereby demonstrate that compounds cannot belong exclusively to the lexicon, Giegerich uses a corpus of newspaper headlines in which novel constructions he regards as compounds freely incorporate adjective-noun strings he regards as phrases, e.g. *plain cigarette pack law*, where *plain* modifies *cigarette pack* but not *law* (p. 117). Similar constructions, so-called ‘phrasal compounds’, are attested across a range of languages, so if they constitute evidence against lexical integrity, there can be little doubt that the theory is wrong (Trips & Kornfilt, 2017). However, Giegerich’s conclusion is that lexical integrity, as manifested by a constraint against phrasal constituents, holds only for listed compounds: for example, *[lexical integrity] principle* would not be possible if *integrity principle* were listed (p. 118). A problem for this conclusion is that, although the author acknowledges that lexicalisation is a gradual process, his argument treats listedness as if it were a binary property. A similar idea is expressed in more gradient terms in Bell (2012), where it is suggested that the interpretation of an ANN construction as either [AN]N or A[NN] depends largely on the relative frequencies of the AN and NN strings contained therein. So *lexical integrity principle* will be interpreted as *[lexical integrity] principle* if *lexical integrity* is more frequent than *integrity principle* in the experience of the person interpreting the expression. Irrespective of the relative merits of the two hypotheses, there is clearly some phenomenon here worthy of further investigation.

Perhaps Giegerich’s most explicit argument in favour of a modular analysis comes in the context of his discussion of ‘associative adjectives’ e.g. *dental* in *dental decay*. These words look like adjectives, but lack prototypical adjectival properties: they can neither function as predicates, nor be modified by adverbs. Furthermore, if a noun is modified by an ascriptive adjective as well as an associative adjective, the latter occurs closer to the head. Associative adjectives therefore have the same distribution as nominal attributes. A number of authors, across a range of theoretical approaches, have used these facts to argue that constructions consisting of an associative adjective plus noun have the status of compound nouns rather than noun phrases (e.g. Alexiadou et al. 2007 p. 319). Giegerich goes further, arguing that such constructions must therefore be formed in a different module than constructions consisting of an ascriptive adjective plus noun, which he regards as phrases (p. 29). But the argument seems circular: if we assume that noun phrases and compounds are formed in different modules, the syntax and the lexicon respectively, then anything we class as a compound is formed in the lexicon. In any case, because the suggested criteria for such a classification produce conflicting results, Giegerich concludes that ‘the lexicon and the syntax are not separate, distinct modules of grammar. They overlap in some way’ (p. 42).

What could it mean to say that the modules of a grammar overlap? Our author suggests that they do so 'like slates on a roof', but this simile is of limited value because slates on a roof actually are separate and distinct from one another, whereas Giegerich argues that some modified nominals are simultaneously both compounds and phrases (pp. 41-42). One way of representing such an overlap would be a Venn diagram showing the intersection of the set of compound nouns with the set of noun phrases. If we assume that pre-modified noun phrases are characterised by having at least one of the following properties - ascriptive semantics, right-stress, possibility of predicative paraphrasing, availability of the constituents for independent modification - and compound nouns are the set of constructions which have at least one of the following properties - associative semantics, left-stress, impossibility of predicative paraphrasing, non-availability of the constituents for independent modification - then any construction that has at least one of the first set of properties plus at least one of the second set of properties will fall in the intersection of the sets, i.e. in the area of overlap (Figure 1).

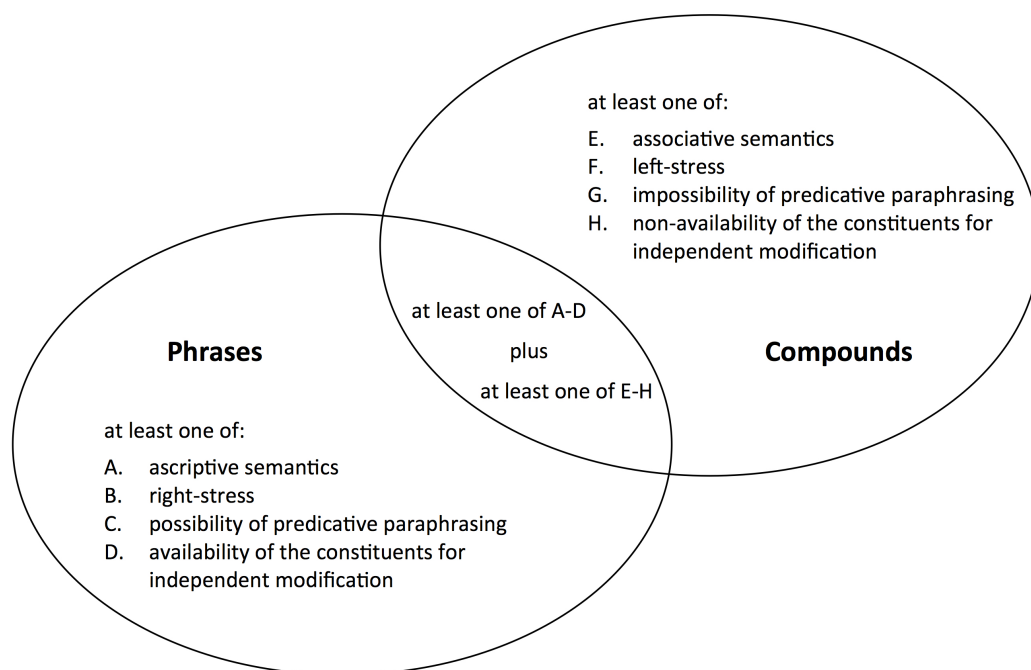


Figure 1: Intersection of the sets of English compound nouns and noun phrases

Figure 1 represents a fairly conventional taxonomy of English nominals, but does not really capture the nature of the purported modules. According to the lexicalist hypothesis, the syntax and the lexicon are not repositories of construction types, but are more like processors, responsible for actually generating phrases and complex words, respectively. Giegerich comes closest to explaining how he envisages the overlapping modules in the following passage:

Let us say this overlap is the site where nominal attributes are attached and where associative attribution takes place. Ascriptive adjectival attribution of the *green house* kind takes place later in the derivation, in the syntax (page 122).

In Figure 2, I have attempted to represent this description, together with properties of modified nominals discussed elsewhere in the book. In the diagram, the dotted triangle represents the lexicon and the solid triangle represents the syntax. The arrows represent stages in the derivation of attribute-noun constructions, with dotted arrows indicating the possibility of recursion. Attachments of associative adjectives, nominal attributes and attributive phrases are represented on the diagram in the area where the two triangles overlap, to reflect the author's assertion that these processes take place in both the lexicon and the syntax. The inclusion in the model of the proposed overlapping modules can be seen as explaining the limits of recursion.

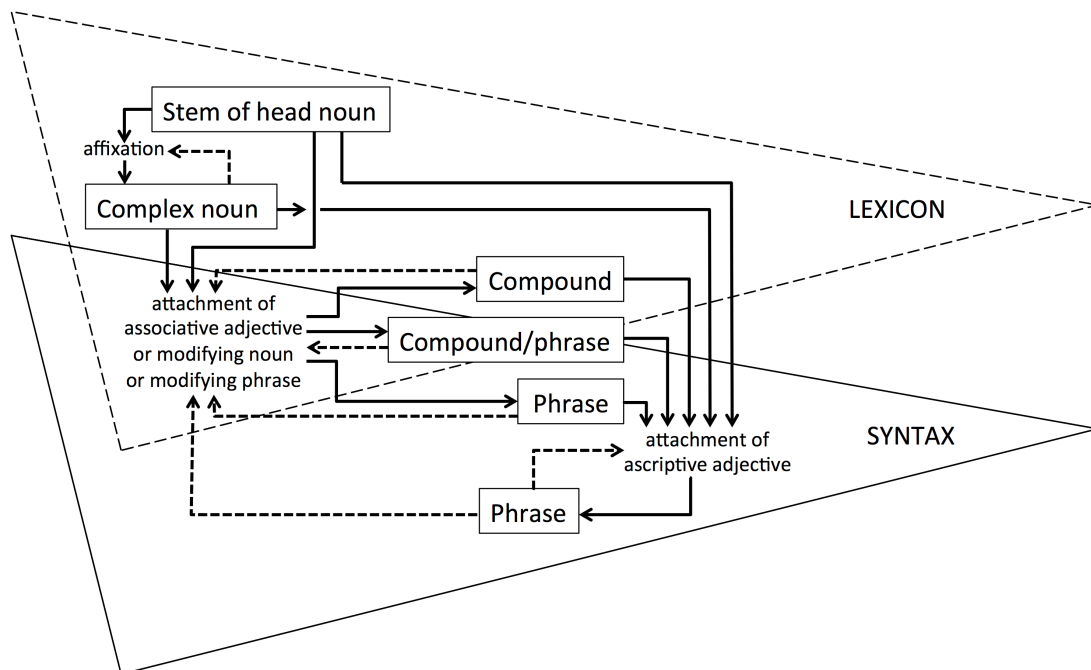


Figure 2: Overlapping modules as described by Giegerich (2015)

Despite the strengths of Giegerich's proposal, the division of the outputs of attribution into phrases, compounds, and compound-phrase hybrids seems unnecessarily to complicate the matter, especially as the model includes no explicit mechanism for determining which of the three construction types will emerge from the overlap area in any given derivation. A simpler but still descriptively adequate analysis would be that they constitute a single set of constructions with gradient properties. Prototypical compound nouns would fall at one extreme end of the continuum, with prototypical noun phrases at the other end. Between these two extremes, modified nominal constructions would vary in terms of their syntax, semantics and phonology, with variation along each

dimension being independent of the others (Figure 3). However, such gradient variation is at odds with a modular model of grammar that assumes categorical distinctions. Furthermore, as Giegerich himself points out, the theory of lexicalism has no way of accounting for the known effects of frequency and diachronic lexicalisation, for example on stress assignment (pp. 123-124).

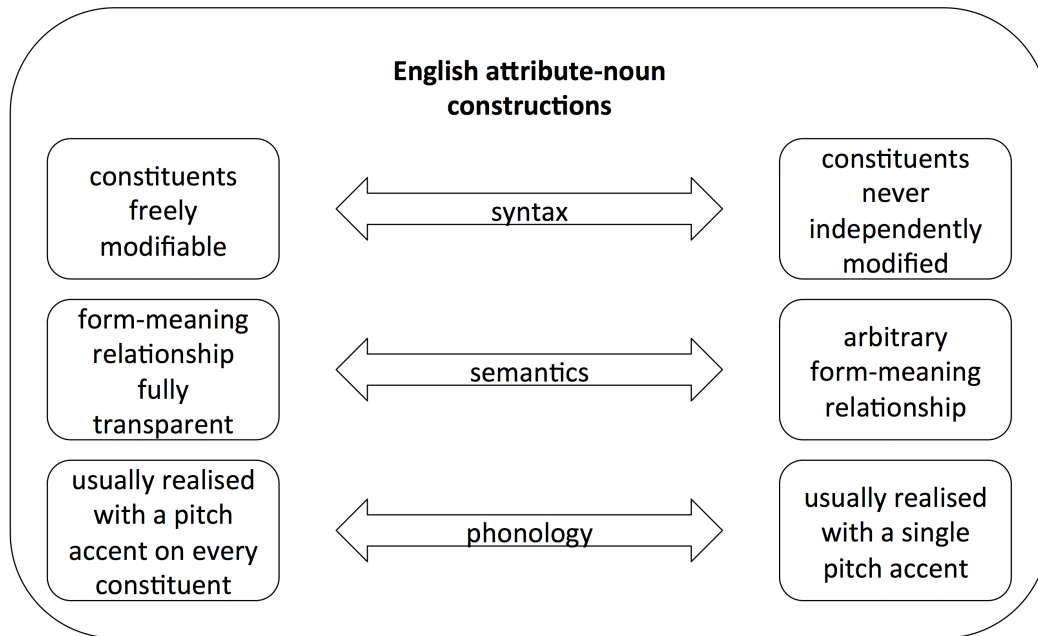


Figure 3: A gradient model of English nominals

One alternative to the modular view is that linguistic constructions are generated by a single analogical mechanism, rather than a series of different processes. In an analogical model of grammar, new constructions are formed and processed on the basis of previously experienced exemplars using similarity-based reasoning. In language production, an existing construction is selected as being similar in some way to the target, perhaps in terms of semantics, and is then used as a model to generate the desired output. In language processing, the incoming form is interpreted by reference to the most similar previously stored exemplar. This kind of reasoning is widespread in human cognition. Giegerich himself exemplifies it when he writes ‘If *wooden bridge* is a phrase ... then so is *steel bridge*’ (p. 54): he is judging that the two constructions are so similar that they must belong to the same class. Arndt Lappe and Bell (2014) argue that, provided that an invariant procedure can be established for assessing similarity, thereby constraining the selection of analogical bases, analogy can function as the central mechanism of a grammatical system. Outcomes fall on a continuum, or a number of different continuums, according to the analogue selected by the mechanism in any given case. Furthermore, frequency effects can be incorporated into the model by allowing for ‘gang’ behaviour, whereby more frequently experienced exemplar types have a greater chance of being selected as bases. Arndt-Lappe (2011) shows specifically that such a mechanism can

account quite successfully for stress assignment in English noun-nouns. The gradient view is therefore not only descriptively but also explanatorily adequate.

It will be apparent from the foregoing discussion that this is a book full of thought provoking ideas. Nevertheless, it is not an easy read, partly due to the order of the chapters. For example, the early chapters make frequent reference to the theory of lexicalism, but the reader has to wait until Chapter 4 before the theory is explained in any detail. Another issue concerns the voice of the author: it is sometimes difficult to discern whether Giegerich actually believes what he is writing or is simply advancing a hypothetical argument. For example, the stated purpose of the study is to test the theory that grammar is modular, yet parts of the book give the impression that the existence of modules is already an established fact. One possible explanation for this apparent inconsistency would be that the book reflects an evolution in the author's beliefs, from firm advocacy of a modular theory in e.g. Giegerich (1999), to the more sceptical view expressed in e.g. Giegerich (2009b). This might also explain why the order of the chapters is hard to follow: it is not the order in which the material was originally published and so the development of the author's insights does not emerge as a clear and consistent narrative. If the book does represent such an evolution, it would have been helpful to the reader to make this clear.

Another challenge for the reader is to understand exactly what the author means by various terms, including e.g. 'adjective' and 'noun'. Prototypical adjectives are said to function as both nominal attributes and predicates, and to be modifiable by adverbs (p. 5). Yet we are also told that 'associative adjectives' such as *dental* have only the first of these three properties, which they share with nouns, while 'Edinburgh is probably an adjective for those speakers for whom *this student is Edinburgh* is grammatical' (p. 17). Of course word class boundaries are known to be fuzzy, and one possible interpretation is that the author regards both possession of the suffix *-al*, and occurrence in predicative constructions, as sufficient though not necessary conditions for adjectival status. But because this is not made explicit, the reader is left to guess. And the same is true for a number of other expressions that are central to the argument: 'syntactic' and 'lexical', 'phrase' and 'compound', 'semantically transparent' and 'compositional'. This is partly the point of the book: linguistic categories are hard to pin down, and English nominals are a prime example of the difficulty. But without some clear definitions, however arbitrary, to serve as firm foundations for the rest of the exposition, the argument seems built on shifting sand.

Notwithstanding the minor frustrations noted above, this book will be of relevance to any reader with an interest in English nominals or theories of language. The author suggests that lexicalists and non-lexicalists are likely to draw different conclusions from the content: the lexicalists will see it as an

improvement to the theory, while the non-lexicalists will regard the theory as falsified (p. viii). However, the book has the potential to do more than simply confirm prejudices, not least because one has the sense in reading it that Giegerich himself is trying so hard to keep an open mind. This willingness to question previously held beliefs, even though there are clearly more questions than answers, is perhaps the book's greatest strength.

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