

# The relevance of phrasal compounds for the architecture of grammar

## Abstract

This paper<sup>1</sup> provides a full account of phrasal compounds (PCs) in Jackendoff's model of Parallel Architecture. PCs are very interesting from a theoretical point of view since they challenge traditional (generative) frameworks based on syntactocentricity and a strict division between the lexicon and grammar. That is why all the analyses proposed so far have failed to fully account for them. I will show that a model like Jackendoff's which is not based on these tenets is able to handle PCs in a much more satisfying way. On the basis of an empirical study of PCs gained from the *British National Corpus* (BNC) it will be shown that an analysis based on Conceptual Semantics can account better for the phenomenon and that a distinction should be made between those PCs which contain a predicate in their phrasal non-head and those which do not since semantically they behave differently. Whereas the former type is based on the IS-A relation (e.g. *this "Steffi is Great" attitude*, the latter type is based on general functions assumed for N+N compounds (e.g. *a "chicken and egg" situation*). Thus, the syntactic structure of PCs belies their true nature, implying that it is not the phrasal structure of PCs which is critical for an adequate interpretation but their conceptual-semantic properties. Further, it will be shown that the "expressive flavour" attributed to PCs can be explained by the interplay between the IS-A relation for the first type of PC, and basic functions for the second type of PCs, the morphological redundancy rule for NNCs, type (mis)matching and, as a result, instances of metonymic coercion. Since this morphological phenomenon can be analysed adequately in a model where semantic structures are built in an independent generative component of semantics linked via components of interface rules to generative components of syntax and phonology, it provides us with new insights into the place of morphology and more generally into the architecture of grammar.

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# 1 Introduction

In a recent contribution to the *Oxford Handbook of Compounding* (2009) Jackendoff<sup>2</sup> investigates the nature of (English) NNCs and proposes an analysis in his model of the Parallel Architecture (henceforth PA; Jackendoff, 1997, Jackendoff, 2002). He starts out discussing the properties of the different types of compounds in English:

- (1) a. peanut butter (sandwich shop) (N+N, completely lexicalised)
  - b. backgammon ball (N+N, novel)
  - c. [health and welfare] fund (conjoined nouns)
  - d. [foreign exchange] flow (A+N)
  - e. [town-gown] tension (paired arguments)
  - f. [two-car] garage (numeral+N)
- (Jackendoff, 2010a, 414f)

It is well-known that compounding is recursive (explicitly indicated by the addition of nominal material in brackets in (1) a.), and that some compounds are lexicalised combinations (again (1) a.), whereas others are novel to many speakers ((1) b.). Thus, not all compounds can be listed, rather the process of compounding must include a productive rule system. Further, some compounds show simple structures whereas others seem to include more elaborate syntactic structure (compare (1) a. and b. to (1) c. to f.). Although it has been proposed that compounding is subject to the Head Principle, which could well be said for the examples in (1), instances of *exocentric* and *copulative* compounding exemplified in (2) are problematic because it is not sufficient to explain these cases:

- (2) a. sunflower
  - b. seahorse
  - c. tractor-trailer
- (Jackendoff, 2010a, 416)

Consequently, we would have to say that the principle of compositionality cannot account for all compounds, nor could the assumption that all compounds are listed since we do find many built on the fly. So both listed and generated compounds must be allowed by any system which seeks to adequately explain this process of word-formation. For Parallel Architecture compounding does not pose a problem in this respect because no strict line is drawn between freely generated

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<sup>2</sup>In the following, I will also refer to the revised version of this paper see Jackendoff, 2010a.

compounds and morphosyntactically complex listed items showing the same structure. All compounds are products of general rules, some of which are more closely related to general schemas (lexicalised ones) than others (built productively).

According to Jackendoff, the difficulty of analysing compounds in an adequate way also lies in their status of being an “evolutionary throwback” (2010a, 421) meaning that compounding, unlike other morphological phenomena, is a protogrammatical phenomenon in the sense of Bickerton’s protolanguage and Klein and Perdue’s Basic Variety (Bickerton, 1990, Klein and Perdue, 1997). Under this assumption, the properties of compounds are a reflex of a direct interface between phonology and semantics, and very rudimentary grammatical structure determined by linear ordering and semantic headedness. Analysed in the model of PA, which is based on Conceptual Semantics, the semantic relations between  $N_1$  and  $N_2$  are established by mechanisms and components like, profiling, coercion and cocomposition, i.e. by a generative system entirely within the semantics. Since the model is non-derivational, simple and complex words are part of the interface components between phonology, syntax and semantics, and depending on their status (lexicalised/novel) they are either stored as a whole in the lexicon or composed online from the individual parts.

In this paper, I will show that Jackendoff’s analysis of compounding is indeed very attractive since it can account for compounding in more general terms, also including the more elaborate, quasi-syntactic type, the so-called phrasal compounds (henceforth PC, see examples (1) c. to f.) above). This type has posed problems for a number of analyses proposed so far because it integrates a whole phrase into a word and thus violates the *No Phrase constraint* (Botha, 1981) and the *Lexical Integrity Hypothesis* (Lapointe, 1980) in traditional models of generative grammar which are based on syntactocentricity and a strict demarcation of the lexicon from grammar (Lieber, 1988, 1992, Štekauer and Lieber, 2009 for English, Gallmann, 1990, Wiese, 1996, Meibauer, 2003, 2007 for German). I am going to claim that a model like the PA, which is not based on these tenets, is able to handle PCs in a more satisfying way and support this claim with empirical findings.

A further property of PCs which has been dealt with only sporadically in the literature is their expressive flavour which has been attributed to their “morphopragmatic” character (Meibauer, 2003, 2007). The examples below serve to illustrate these properties (the determining, first part of the compound consists of a whole sentence given as quotation):

- (3) She also knows that the media tendency to lump together women singer-songwriters

in a “*gee whiz, gosh, women are now making it*” syndrome is patronising, if not pernicious. (BNC, A7S190)

- (4) Bombay-based Anil put India’s failure to exploit its manpower and mind power and its lack of excellence in sport, economics and the arts down to a “*Learn what is there and don’t question it*” attitude. (BNC, HAE4088)

Because of their formal and expressive peculiarities, they have been labelled as a marginal type of word-formation. I will show that the PA can not only account for the “formal” properties of PCs but also for the pragmatic value these compounds have, by assuming standard processes of coercion on the conceptual-semantic level. This paper tackles these issues and assumes an analysis which hopefully provides further insights into the interplay between phonology, syntax and semantics, the place of morphology and pragmatics in a formal model of language as well as the nature of the lexicon. More precisely, it aims to stir up the discussion of whether an account where all combinatorial phonological and semantic properties are derived from syntax can really explain morphological phenomena like these, or whether a model like the PA, where semantic structures are built in an independent generative component of semantics linked via components of interface rules to generative components of syntax and phonology, should be preferred. This point then will, of course, have consequences for the architecture of grammar.

The outline of the paper is as follows: in the next section (2.1), I will briefly discuss the different assumptions in the few papers which have dealt with PCs so far and outline their strengths and weaknesses. In section 2.2 I will compare these with Jackendoff’s analysis of NNCs and outline the advantages of his analysis over the others. In a next step (section 2.3), I will discuss the morphopragmatic properties of PCs by paying special attention to Meibauer’s (2007) findings concerning their expressive flavour and show that they make up an important part of their conceptual-semantic structure. Section 3 presents findings from a study of PCs in the *British National Corpus* (BNC) which will serve as the empirical basis for a new account in the model of PA. Here, first a categorisation along the lines of Jackendoff’s (1997; 2009) and Meibauer’s (2003; 2007) conceptual classification will be provided before a new analysis based on Jackendoff’s PA and Meibauer’s definition of the expressivity of PCs will be introduced. I will show that PCs can be analysed with Jackendoff’s compounding schemata by including a new function to the hitherto proposed set of basic functions available for compounds, as well as instances of coercion available for pragmatics, which I will take to imply that it is not their “syntactic” structure but their conceptual-semantic properties, including morphopragmatics, that are crucial for their analysis. Section 4 summarises the overall

results of the paper and concludes.

## 2 Analysing phrasal compounds

Although the phenomenon of PCs has been discussed in the literature (e.g. Botha, 1981, Lieber, 1992, Štekauer and Lieber, 2009) it has not been looked at in a comprehensive or systematic way, at least not in English (for German a number of such papers exist, cf. Lawrenz 1996, Meibauer, 2003, Meibauer, 2007). In her 1992 monograph, Lieber locates PCs at “... the fringes of morphology, so to speak, where the syntax of words and that of phrases seems to converge” (Lieber, 1992, 11). For English, she gives the following examples<sup>3</sup>:

- (5) a. the [Charles and Di] syndrome
  - b. [over the fence] gossip
  - c. a [slept all day] look
  - d. a [who’s the boss] wink
- (Lieber, 1992, 11)

What is so special about these compounds is that the left-hand member is a complex, maximal phrase: it can be a whole sentence like a CP since wh-questions can occur as in (5) d. (for further types see section 3), it can be a (coordinated) NP (5) a., a PP (5) b., or a VP (5) c., only determiners and hence DPs are not allowed (e.g. \* the *the Charles and Di syndrome*).

Concerning the theoretical analysis of PCs, it has been shown that they are problematic in a generative framework which assumes that language can be clearly partitioned into a lexicon and a grammar and that syntax determines the combinatorial properties of phonology and semantics (Chomsky, 1965, Chomsky, 1981). The *No Phrase constraint* (Botha, 1981) and the *Lexical Integrity Hypothesis* (Lapointe, 1980) result from these constraints. The analyses of PCs which will be discussed in the following all assume these constraints and, as will be shown, therefore run into a number of problems.

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<sup>3</sup>Since Lieber’s examples are not given with their context, it is not clear whether she found them in a corpus or whether she made up the examples. Therefore, it is also not clear what the original graphic representation of her PCs is, i.e., if they actually occurred with quotations marks.

## 2.1 Analyses in the traditional generative model

In her syntactic analysis, Lieber (1992) assumes that the lexicon does not contain any word formation rules and that complex words which are semantically compositional are built in syntax. What is contained in the lexicon are non-complex entities like roots and affixes as well as simplexes which are semantically non-compositional. Since PCs are built in syntax, Lieber has to modify the X-bar schema which means that she has to allow for recursion on the level of  $X^o$  leading to the following structures for PCs:

- (6) a. 
$$\begin{array}{c} X^o \\ \swarrow \quad \searrow \\ YP \quad X^o \end{array}$$
- b. 
$$\begin{array}{c} X^o \\ \swarrow \quad \searrow \\ X^o \quad YP \end{array}$$

By postulating that PCs are built in syntax, Lieber makes syntax even more complex and powerful resulting in an overgeneralisation of structures which are not attested (for a detailed discussion see Meibauer, 2003). Moreover, this automatically implies that PCs are generally semantically compositional, i.e. transparent, an assumption that is not supported, since it was shown that the phrasal part as well as the whole PC can indeed be lexicalised (cf. Gallmann, 1990, Wiese, 1996, Meibauer, 2003).

Wiese (1996) proposes a linear or lexicalist approach to PCs: contra Lieber he claims that the phrasal non-heads have to be interpreted as citations which he defines as “the repetition of an utterance made by some other speaker” (1996, 189). The inner structure of these citational elements is not visible in word structure and thus they have the status of phrases, YPs, which have undergone a transfer to  $Y^o$  elements:

- (7) 
$$\begin{array}{c} X^o \\ \swarrow \quad \searrow \\ Y^o \quad X^o \\ | \\ \text{“NP”} \end{array}$$

In this way, Wiese shows that compounds with a phrasal element can neither be part of syntax nor a phenomenon at the interface between syntax and morphology

(see also Meibauer, 2003, 2007). What is problematic in this approach is, however, that it is not clear how this transformation takes place. With his approach, Gallmann (1990) runs into similar problems although he has proposed an analysis in what has been called a mixed model (for a taxonomy of these models see Borer, 1988) where interaction between different modules is possible. He observes that almost any part of speech which he calls “beliebiger Sprachausschnitt” can be used as a non-head in compounding and suggests that they can be converted to an  $N^o$ . He proposes the following nominalisation rule<sup>4</sup>:

- (8) a. [beliebiger Sprachausschnitt]  $\rightarrow$  N  
 b. [<sub>VP</sub> trimm dich!]  $\rightarrow$  nominalisation [<sub>N</sub> Trimm dich]  $\rightarrow$  compounding [<sub>N</sub>[<sub>N</sub> Trimm dich] [<sub>N</sub> Pfad]  
 (Gallmann, 1990, 88)

In this example, the string “trimm dich!” (*keep fit!*) which is analysed as a VP first undergoes nominalisation, develops into an  $N^o$ , and is then integrated into an NNC. Although some problems do not arise due to the fact that a mixed model is assumed and therefore syntactic processes can have access to word-formation processes, other problems arise, e.g., that the string of elements he assumes is not clearly defined and that therefore also compounds of the type N+N fall under the CP type although the latter of which clearly has different properties.

Another analysis in the mixed model which seems to be more promising at first sight is Ackema & Neeleman (2004, henceforth A&N) assuming Phrasal Syntax and Word Syntax as independent structure-generating modules which run simultaneously, which are symmetrical and interact with each other. Concerning the analysis of NP + X compounds<sup>5</sup> they propose that in a process which they call Generalised Insertion, implying that the kind of node and representation is irrelevant, elements from Phrasal Syntax are inserted into Word Syntax by a mechanism of feature matching. Feature matching is conditioned by the requirement that the nodes which are matched possess matching properties, whereas the process of insertion is conditioned by inclusiveness in the sense of Chomsky (1995). For a compound like *white water rafting*, the authors assume a process where presumably the nominal features of the NP non-head and the N head are matched. However, as concerns PCs where the non-head is an N and the phrase a CP, it is not clear at all which categorial feature should be checked. That is why Meibauer (2007) suggests that the non-heads should be seen as “building blocks” (in the sense of A&N) rather than

<sup>4</sup>Where necessary, Gallmann’s example was translated into English by the author of the paper.

<sup>5</sup>It should be noted that A&N do not explicitly discuss PCs with a sentential non-head.

items which undergo the feature matching process. Moreover, Meibauer observes that the restrictions on binding and movement that are supposed to hold under the *Lexical Integrity Hypothesis* do not apply to (all) PCs. Examples like (9) show that anaphorical binding into the non-heads of PCs is sometimes possible:

- (9) Damals wurde die **Gott<sub>i</sub>**-ist-tot-Thematik in allen Zeitungen diskutiert, aber wir glaubten nicht daran, dass **er<sub>i</sub>** tot ist.  
 ‘In those days the god-is-dead subject was discussed in all newspapers, but we did not believe that he was dead.’ (Meibauer, 2007, 243)

Further, since in A&N’s model competition between syntax and morphology is assumed to be one way of interaction between these two generative systems, it should also give an explanation why PCs are more marked than compounds which do not contain a phrase. To put it more theoretically, why is it possible that sometimes the insertion of a syntactic phrase into a morphological phrase wins out over morphological generation in word syntax (e.g. building an NNC or retrieving it from the lexicon if it is stored)? According to Meibauer (2007) the answer lies in the special, morphopragmatic properties of PCs (see below).

From the discussion of these models it has become clear that they all underlie the restrictions of one form or other of the *Lexical Integrity Hypothesis*, regardless of whether a mere syntactic, mere lexicalist or a mixed approach is favoured. Since PCs seem to contain phrasal as well as non-phrasal material “on the surface”, under this hypothesis an adequate account does not seem to be possible. I will show below that the classification of PCs on this mere structural level cannot account for the semantic differences found among them. Rather, it is the conceptual-semantics of PCs which is decisive here: it requires a classification where the presence or absence of a predicate in the phrasal non-head is the critical feature. Therefore, I claim that an account which attributes an independent role to the semantic component fares much better in accounting for PCs. Such an account can be given in Jackendoff’s model which I will introduce and discuss next.

## 2.2 Jackendoff’s analysis (2009) of compounds

Jackendoff’s model clearly parts company with the analyses discussed above since, as mentioned above, they are all based on the classical generative framework having the following properties: it is syntactocentric, derivational, and it clearly separates the lexicon from grammar (cf. Jackendoff, 2007, 2010c). The first two properties are related, since the derivational process of generating structures always starts



in the syntactic component, implying that both phonological and semantic structure is read off from syntactic structure. The third property defines that the lexicon stores (mainly idiosyncratic) words whereas grammar proper is responsible for rules which express the regularities about the combination of words into sentences. In contrast, Jackendoff assumes a model of independent generative components, where semantic structures are built in an independent generative component of semantics which is linked via components of interface rules to generative components of syntax and phonology, which are also independent of the other components. What is crucial is that the interface rules are not derivational, so a word is not thought of as “... a passive unit to be pushed around in derivation, but as a part of the interface components. It is a long-term memory linkage of a piece of phonology, a piece of syntax, and a piece of semantics, stipulating that these three pieces can be correlated as part of a well-formed sentence” (2009, 107).

Further, his grammar model is constraint based and inherently nondirectional, and there is no strict lexicon-grammar distinction to be found. Under these assumptions, units larger than one word, and that would in the case of PCs include sentential strings, can well be located in the lexicon, as long as there is evidence that they are stored there as a whole (compare the difference between the lexical *kick the bucket* and the phrasal *throw the shovel*). But what about morphological complexes like compounds? Here, Jackendoff draws on the insights Bickerton (1990) has gained by dealing with the evolution of language. According to Bickerton, the development of the language faculty happened in two stages: first protolanguage emerged including only vocabulary and pragmatics, then modern language evolved on top of it as a refinement where morphology and syntax were added. In situations where modern language is disrupted for some reason, protolanguage “shines through”. The phenomena Bickerton includes here are the rise of pidgins, the two-word stage of language learning, and agrammatic aphasia (for further phenomena see Bickerton, 1990, Klein and Perdue, 1997 and Fanselow, 1985). For Jackendoff, compounding is also a protogrammatical phenomenon, since it shows only rudimentary grammatical structure and can be mostly explained by linear ordering of elements and semantic headedness, which are language-specific properties (for similar assumptions see also Trips, 2006). The semantic interpretation of compounds is dependent on the semantics of the words being combined, and on the context in which they occur, which corroborates Jackendoff’s assumption. Since compounds do not seem to be sensitive to syntactic category (compare e.g. compounds like *atom bomb* and *atomic bomb*) we could say that in the model of PA they are the result of a subsystem which omits the syntactic component, and only includes a

direct interface between phonology and semantics. Compounds of the type N+V where the noun can never function as the internal argument of the verb (e.g. *window shop* cannot mean ‘to shop windows’) further corroborate this assumption (for Ackema and Neeleman (2004) the syntactic relation cannot be expressed in syntax, resulting in the blocking of morphology by syntax). Jackendoff notes that this viewpoint should not be seen as too radical since semantic relations which link discourse together are not syntactically marked either, so “[c]ompounding is just the same sort of phenomenon writ small” (2010a, 425). In my opinion the phenomenon of PCs has to be added here because the complex syntactic structure of the non-head is hardly relevant for their interpretation. PCs can thus be defined in terms of phonological and semantic properties, including also aspects of meaning which are pragmatically derived. As Meibauer has shown quite convincingly in his 2007 study, the expressive flavour of PCs is indeed pragmatically driven, the question I will try to answer is how this property can be formalised in Jackendoff’s account (see section 3) below. Before we will deal with this issue, however, it is necessary to show how Jackendoff accounts for non-phrasal compounds in general and to see which assumptions he has to make.

In line with traditional analyses of (N+N) compounds, Jackendoff assumes that the meaning of a compound is a function of the meaning of its parts: given two nouns  $N_1$  and  $N_2$  meaning  $X_1$  and  $Y_2$  respectively, the function<sup>6</sup>  $F(X_1, Y_1)$  has to be defined to determine the meaning of the compound  $[N_1 N_2]$ . This assumption and the *Head Principle* lead to the following schema for non-synthetic compounds<sup>7</sup>

- (10)  $[N_1 N_2] = [Y_2^\alpha; [F(..., X_1, \alpha, ...)]]$   
       ‘an  $N_2$  such that  $F$  is true of  $N_1$  and  $N_2$ ’  
       (Jackendoff, 2009, 122)

As concerns the basic functions for English (N+N) compounds, Jackendoff lists the fourteen most prominent ones like e.g. CLASSIFY (X,Y) (*helicopter attack*), BE (Y,X) (*maiden aunt*) or KIND (X,Y) (*puppy dog*) the functions of some of which are reversible (e.g. *attack helicopter* where the argument relation is reversible). Additionally, further possible relations can be created by a generative system which includes coercion (a type shift operation), in Jackendoff’s terms the possibility to add unspoken semantic structure to connect  $N_1$  and  $N_2$ ), and cocomposition (filling

<sup>6</sup>In the following, instead of using  $F$  I will use the variable  $R$ (elation) which has also been used in this context to make clearer that we talk about the relation between the meaning of  $N_1$  and  $N_2$ .

<sup>7</sup>Profiling is indicated by the variable  $\alpha$ , in the schema it is bound by the superscript on  $Y_2$  which results in a well-formed modifier. For details on profiling cf. Jackendoff, 2009.

out functions with internal semantic structure of  $N_1$  or  $N_2$ ; for a detailed account see Jackendoff, 2009, 2010a).

As will be shown in section 3.2 a decisive role in explaining the nature of PCs will be attributed to Jackendoff's operation of coercion, which has also been called "enriched composition" (Pustejovsky, 1991, 1995, Jackendoff, 1997) and serves either to achieve well-formedness of conceptual-semantic structure or to satisfy the pragmatics of discourse of extralinguistic context. A special type of this phenomenon is "reference transfer" (see e.g. Nunberg, 1979), which can be nicely illustrated with Nunberg's famous example of the *ham sandwich*:

- (11) The ham sandwich is sitting at table 20.  
(Nunberg, 1979, 149)

The source reading *ham sandwich* is interpreted as 'person contextually associated with ham sandwich' (the shifted reading), but this is only possible if the source of the transfer has some salient property (Jackendoff, 1997, 57). So any other referent used as subject would not do ((12) a.), nor could the original referent be bound with a reflexive ((12) b.).

- (12) a. \*The little dog over there in the corner wants a hamburger.  
b. \*The ham sandwich pleased itself. (Jackendoff, 1997, 57)

These examples show that enriched composition underlies certain principles, one being that the source of the transfer is salient in a special situation or domain. Especially this aspect can explain the expressive flavour of PCs as I will demonstrate in my analysis below.

Coming back to Jackendoff's generative system for compound meaning, we can say that it consists of the following components:

1. a family of basic functions or relations, many of which can be profiled on either variable
  2. the set of action modalities, which are applied to the function  $F$  to provide further possibilities
  3. cocomposition of aspects of noun meaning with the function  $F$
  4. a set of structural principles that can be combined to build structurally more complex realizations of  $F$
- (Jackendoff, 2009, 123)

To briefly illustrate how this system works, let us take a look at three examples. In the first case, *beef stew*, which is an instance of the modifier schema, the action modality is applied to the function  $F$  and expressed by MADE-FROM:

- (13)  $\text{beef}_1 \text{ stew}_2 = \text{'stew such that } F \text{ is true of beef and stew'} = \text{'stew made from beef'}$   
 $\text{beef}_1 \text{ stew}_2 = [\text{STEW}_2^\alpha; [\text{MADE-FROM}(\alpha, \text{BEEF}_1)]]$   
 (Jackendoff, 2010a, 435)

In the second case, *water fountain*, cocomposition plays a role:

- (14)  $\text{water}_1 \text{ fountain}_2 = [\text{FOUNTAIN}_2^\alpha; [\text{PF}(\text{FLOW}(\text{WATER}_1, \text{OUT-OF } \alpha))]]$   
 (Jackendoff, 2010a, 443)

Here, the *proper function* (PF) of *fountain* is ‘liquid flows out of’ and not water, however, the modifier *water* can fill out the content of  $F$ : the PF of *fountain* cocomposes with  $F$  to produce the semantic structure.

In the third case which is a special case of compounding—exocentric compounds—coercion plays a crucial role. This type of compound can be explained by a general coercion schema for metaphor which says that one can refer to an object by using the name of something that resembles it. An exocentric compound like for example *pig tail* has the following structure then:

- (15)  $\text{pig}_1 \text{ tail}_2 = [\text{HAIR}^\alpha; [\text{SIMILAR}(\alpha, [\text{TAIL}_2^\beta; \text{PART}(\beta, \text{PIG}_1)])]]$   
 (Jackendoff, 2010a, 447)

Although so far we have only dealt with non-phrasal compounds, we can nevertheless see the differences between this approach and the other approaches discussed in section 2, and where an analysis of PCs will lead to if based on Jackendoff’s assumptions. The principles and compound schemata proposed in the PA model show that the meaning of NNCs can be quite complex and that it is possible to account for these without assuming syntactic complexity. This point will become important again in the analysis of PCs which “on the surface” contain a considerable amount of structural material, that can be explained by complex conceptual-semantic structure. Moreover, as mentioned in the introduction, PCs are said to have an expressive flavour which can be defined in terms of special morphopragmatic properties, so the level of pragmatics and discourse has to be taken into account as well, which is possible via processes of coercion as I have just demonstrated above. This observation seems to corroborate the hypothesis that compounding is a protogrammatical phenomenon, and further, that PCs could even be seen as the prototype of these phenomena. Before I will come back to this hypothesis in section 3.3, I will discuss the morphopragmatic properties of PCs in the next section.

### 2.3 The morphopragmatics of phrasal compounds

In this section, I will address the morphopragmatic properties which have been attributed to PCs by authors like Meibauer. First, I will discuss Meibauer's (2003) findings for German to which he applied Jackendoff's (1991) semantic classification of fixed expressions (for the lexicalised cases), then I will discuss Meibauer's more recent paper on PCs where he discusses a self-conducted study concerning their expressive effect and their pragmatic properties by applying the theory of Generalised Conversational Implicatures (Levinson, 2000). In section 3, I will apply his findings to the PCs from the *BNC*, and argue in favour of a distinction between those PCs whose phrasal non-head contains a predicate (hence,  $PC_{[+pred]}$ ) and those PCs where this is not the case ( $PC_{[-pred]}$ ). I will motivate this step by showing that these two types of PCs differ semantically, i. e., those which lack a predicate in the non-head function exactly like the non-phrasal compounds, a similarity pertaining to their conceptual-semantic structure only. My analysis will yield the basic functions needed to integrate the morphopragmatic properties of these PCs in the conceptual-semantic structure.

In his 2003 paper Meibauer makes a distinction between PCs which have a lexicalised non-head and those where this is not the case, i.e. where it is clear that the non-head cannot be lexicalised in the sense of "not stored in the lexicon as a whole unit". In his theory of the lexicon, Jackendoff assumes the following semantic categories for fixed expressions (see also Jackendoff, 1995, 135f): idioms, clichés, titles, quotations, binomials, foreign phrases, numerals. Meibauer found quite a number of PCs where the non-head was lexicalised and could be classified according to these categories<sup>8</sup>:

- (16) a. idiom: Kopf-durch-die-Wand-Strategie  
(head-through-the-wall-strategy)
- b. cliché: Genau-so-ist-es-Effekt  
(exactly-so-is-it-effect)
- c. title: Romeo-und-Julia-Gefühl  
(Romeo-and-Julia-feeling)
- d. quotation: "Keine-Macht-den-Drogen"-Schmarrn  
(no-power-the-drugs-rubbish)
- e. binomial: Pfeffer-und-Salz-Haare  
(pepper-and-salt-hair)

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<sup>8</sup>The English glosses given for Meibauer's examples were added by the author of the paper.

- f. foreign phrases: Fast-Food-Kino  
(fast-food-cinema)
- g. numerals: 630-Mark-Gesetz  
(630-mark-law)  
(Meibauer 2003:171)

However, there are PCs where a lexicalised status of the non-head cannot really be assumed:

- (17) Irgendwas-stimmt-nicht-mit-dem-Jungen-Blick  
(something-is-wrong-with-the-boy-look)  
(Meibauer 2003:172)

In this case and in other cases, the non-head appears to be a freely generated sentence which has been produced on the fly. Concerning the conceptual properties of these cases, Meibauer found that although there does not seem to be a strong restriction to a set of concepts, the production and use of PCs is semantically and pragmatically motivated meaning that there is a tendency to use them to define concepts in discourse. He suggests the following classification based on the conceptual properties of the head:

- (18) a. INDIVIDUAL: Meine-Frau-versteht-mich-nicht-Geliebter  
(my-wife-understands-me-not-lover)
- b. PROPERTY: Irgendwas-stimmt-nicht-mit-dem-Jungen-Blick  
(something-is-wrong-with-the-boy-look)
- c. ATTITUDE: Meine-Freunde-sagen-Luc-zu-mir-Freundlichkeit  
(my-friends-say-Luc-to-me-friendliness)
- d. ACTION: Wer-ist-der-beste-Mann-Duell  
(who-is-the-best-man-duel)
- e. UTTERANCE: “Keine-Macht-den-Drogen”-Schmarrn  
(no-power-the-drugs-rubbish)
- f. TIME: Ich-wasch-mein-Auto-vor-der-Haustür-Zeit  
(I-wash-my-car-in-front-of-the-door-time)
- g. THING: Ich-bin-doch-nicht-blöd-Markt  
(I-am-not-stupid-market)

Apart from these concepts discourse knowledge may play a part in the interpretation of deictic elements which can be part of PCs:

- (19) a. Seit geraumer Zeit grassiert unter Prominenten; eine neue Krankheit: das  
**“Ich-lass-mich-fotografieren-und-kassier-dafür”-Fieber.**  
for some time a new illness has raged among the VIPs: the  
“I-let-take-pictures-of-me-and-clean-up”-fever

- b. Alle Spiele sollen wie in der guten, alten  
**Ich-wasch-mein-Auto-vor-der-Haustür-Zeit** am Samstagnachmittag  
 stattfinden.  
 all games should take place as in the good old  
 I-wash-my-car-in-front-of-the-door-time  
 (Meibauer 2003:178f)

The example in (19) a. shows an anaphoric relation between the *Prominenten* (VIPs) and *ich* (I), where the referent of *ich* (I) is a subset of the referents of *Prominenten* (VIPs). In the b. example a direct link to elements in the discourse does not exist, the relevant elements in the PC have a generic interpretation.

Meibauer further found that world knowledge is a prerequisite to interpret most of the PCs he analysed in his corpus, a point which will be corroborated by the data from the *BNC*. It includes knowledge about persons and scandals (e.g. to understand and interpret the PC *Dieter-“Ich-hab-der-Tusse-keine-gefeuert”-Bohlen* ‘Dieter-“I-didn’t thrash-the-bird”-Bohlen’ the hearer/reader has to know the person *Dieter Bohlen* and the many scandals he provoked), about the social, cultural and historical context of some quotations (“Keine-Macht-den-Drogen”). The fact that most of the PCs are built on the spur of the moment as a kind of reaction to current situations, is also in line with Meibauer’s observations. Most of them attract attention because of their form but also because of their being stylistically marked. In his 2007 paper, Meibauer claims that the markedness of PCs is due not only to their structure but also to their expressivity. Although “expressive morphology” has been discussed and identified in the literature (e.g., Bauer, 1997, Zwicky and Pullum, 1987) PCs have not been taken into account. Zwicky and Pullum (1987, 5) assume that expressive morphology “... is associated with an expressive, playful, poetic, or simply ostentatious effect of some kind ...” and name derivational phenomena like *cartooneteria*, *in-fucking-stantiate* and *Johnny “Guitar” Watson*. While for at least some of these formations we would say that the expressive nature derives from the lexical semantics of these elements as e.g. from *-eteria* in *cartooneteria* and *fuck-ing* in *in-fucking-stantiate*, for other types of expressive morphology this property is derived from structure. Meibauer suggests that this is also true for PCs in the sense that the occurrence of a syntactic structure in a morphological complex is driven by pragmatics.

In order to prove this assumption, Meibauer first of all compares NNCs with phrasal compounds. As already discussed above, compounds are underspecified, i.e. the semantic relation between  $N_1$  and  $N_2$  is not determined, it is the context which determines its extension (cf. e.g. Downing, 1977, Meyer, 1993). One quite

prominent example to illustrate this property is Bauer's *world sky* (2002, 46), another is

- (20) a. pontoon bridge  
b. = bridge supported by pontoons  
c. = bridge floating on pontoons  
d. = bridge made of pontoons  
e. = pontoons in the form of a bridge  
(Lees, 1960, 123)

Meibauer states that the difference between the interpretation of an NNC and a PC can be explained by pragmatic principles. Based on the theory of Generalised Conversational Implicatures (GCI) by Levinson (2000), speakers adhere to principles like the *Principle of Informativeness* (henceforth I-principle)

- (21) *I-principle*  
*Speaker's maxim*: the maxim of Minimization. "Say as little as necessary"; that is, produce the minimal linguistic information sufficient to achieve your communicational ends (bearing Q in mind).  
*Recipient's corollary*: the Enrichment Rule. Amplify the informational content of the speaker's utterance, by finding the most specific interpretation, up to what you judge to be the speaker's m-intended [=meaning-intended] point, unless the speaker has broken the maxim of Minimization by using a marked or prolix expression. [...]  
(Levinson, 2000, 114)

or the *Principle of Quantity* (henceforth Q-principle):

- (22) *Q-principle*  
*Speaker's maxim*: Do not provide a statement that is informationally weaker than your knowledge of the world allows, unless providing an informationally stronger statement would contravene the I-principle. Specifically, select the informationally strongest pragmatic alternate that is consistent with the facts.  
*Recipient's corollary*: Take it that the speaker made the strongest statement consistent with what he knows [...].  
(Levinson, 2000, 76)

When a speaker chooses to produce a PC instead of an NNC a conflict between these two principles arises. To illustrate the difference, let's use Meibauer's two examples: A speaker uttering the NNC *Fähnchensommer* (little-flags-summer) is as economical as he/she can be, since he/she simply states that there is an entity which can be described by *Fähnchen* and *Sommer* and that there is a relation between the two nouns. In isolation, this compound can only be interpreted in the sense that there is a modifier relation between summer and little flags. The recipient's task,



on the other hand, is to find the most specific interpretation in accordance with the speaker's intention, and this happens by inferring the relevant information from the context of the utterance. If this example is compared with a PC like *let-us-stay-friends platitude*, we find that the non-head, which is a sentence, is more complex and therefore more informative than a word. Moreover, sentences contain propositions which can be evaluated as being true or false by a recipient (as I will show below this property is critical), and they have illocutionary force (directive illocution in this example). Sentences can further have a set of entailments and therefore the basis for inferences is much bigger than for words. So, by choosing a PC a conflict arises between the maxim of Minimization and the maxim which requires to select the "informationally strongest paradigmatic alternate". For Meibauer, this conflict is what makes PCs expressive:

(23) *Expressivity in CP phrasal compounds*

Expressivity of phrasal compounds stems from a conflict between a principle that requires enrichment of a minimal and underdetermined structure in normal compounds (e.g. the I principle) and a principle that requires maximal informativity (e.g. the Q principle) and leads to the integration of a phrase into word structure. (Meibauer, 2007, 248)

To find support for his hypothesis, he conducted an experiment with students with the task to evaluate a PC in comparison with an NNC and further alternatives having the same denotation on the basis of two properties, understandability and wittiness (for the design and exact procedure of the experiment see Meibauer, 2007, 249ff). Understandability was defined as the case when the effort of enrichment is too big, and wittiness as the case when incongruity on the word level occurs, so generally the integration of a phrasal meaning into a word meaning is surprising for recipients. In the course of the experiment, the following material was used:

An ad hoc PC found in authentic data:

- (24) Während diese Zeilen entstehen, werden mehrere hundert laminierte **“Kaufe-Ihr-Auto-Kärtchen”** hinter die Hubscheibenwischer alter Mittelklasse-Mercedes geklemmt. Dabei würden deren Besitzer viel lieber an den freundlichen jungen Mann verkaufen, der sich so rührend um seine anderen alten Autos kümmert.  
[Youngtimer 2/06,S.55]  
'While these lines are written, several hundreds of laminated **buy-your-car cards** are stuck behind the lift windscreen wipers of old middle class Mercedes. Yet their owners would prefer to buy their cars to the friendly young man who is so very solicitous towards his other old cars.'  
(Meibauer, 2007, 250)

Alternatives to the PC:

- (25) a. Autokärtchen  
car card<sub>DIM</sub>  
b. Kaufkärtchen  
buy<sub>V/N</sub> card<sub>DIM</sub>  
c. Kaufe-Ihr-Auto Kärtchen  
buy<sub>1.PS.SG</sub>-your-car card<sub>DIM</sub>  
d. Kärtchen “Kaufe Ihr Auto”  
card<sub>DIM</sub> “buy<sub>1.PS.SG</sub> your car”  
e. Kärtchen mit der Aufschrift “Kaufe Ihr Auto”  
card<sub>DIM</sub> with the writing “buy<sub>1.PS.SG</sub> your car”  
f. Kärtchen, auf denen “Kaufe Ihr Auto” (card<sub>DIM</sub> on which “buy<sub>1.PS.SG</sub> your car” is written) (Meibauer, 2007, 250)

Meibauer gained the following results: PCs built on the fly were evaluated as being highly understandable and witty. The context of PCs may support wittiness, but it is not critical for their being perceived as such. Even in isolation they are considered wittier than their alternatives and this has to do with their status of being non-lexicalised. Lexicalised PCs are very understandable but not very witty which can be explained by their lexicalised meaning. The alternatives (compounds and syntactic constructions) were generally evaluated as being less understandable and witty.

In this way, Meibauer has shown that the formation of PCs and its perception is motivated on pragmatic grounds, and that pragmatic principles have access to morphology. In the following section I will propose an analysis which is based on both Jackendoff’s assumptions concerning NNCs and Meibauer’s observations and assumptions concerning the expressive flavour of PCs and show how the morpho-pragmatic properties can be integrated into conceptual-semantic structure.

### 3 Phrasal compounds in the BNC and a new account

In this section, I am going to present and discuss the data I have collected from the *BNC*. First, I will provide a qualitative analysis of the PCs from the *BNC* along the lines of Meibauer’s classification discussed in the preceding section. In a further step I will introduce a new account of PCs which explains all of their properties discussed so far. As mentioned above, it will be based on fundamental assumptions of the PA model, and more explicitly, it will apply Jackendoff’s analysis of NNCs to the PCs as well as add necessary assumptions based on Jackendoff’s analysis of

idioms (1997; 2005; 2010a) and aspects about the storage and processing of this type of PC (Jackendoff, 2010c). The morphopragmatic properties discussed above will be integrated by assuming processes of metonymic coercion<sup>9</sup>.

### 3.1 A qualitative analysis of phrasal compounds

The data to be discussed was collected using the *BNCweb* via the Lancaster interface since it allows to use corpus query processor (cqp) language in a convenient way and since it also provides statistical information like the distribution of the phenomenon across categories, e.g. written, spoken, text type, age of author etc. (see also Trips, 2012). Before defining the corpus query, it was inevitable to check how PCs are generally spelt. As opposed to PCs in German the non-heads of which occur either as quotation or are written with hyphens with a strong tendency towards the latter, English PCs do not occur with hyphens at all but as quotations<sup>10</sup>. That is why I defined the query as follows: “search for any string which ends in an N and is preceded by 3 to 10 words which are embraced by quotation marks”<sup>11</sup>. Then I manually checked the results and categorised the compounds found according to the word categories of their non-head and head using global regular expression print (grep) and other Unix shell tools. A finding which is quite striking in my opinion is that among the total of 1397 tokens about half of them are of the type PC<sub>[+pred]</sub> (labelled VP+N here): 694 are of the type NP+N, 650 of the type VP+N, 32 of the type AdvP+N, 15 of the type PP+N and 6 are of the type AdjP+N. Further, most of these PCs occur only once in the corpus. This hapax legomena status, brought in correlation with their being non-listed, is an indicator of productivity. This is indeed borne out in general, and especially for the type PC<sub>[+pred]</sub>. Those PCs which occur more than once in the corpus are predominantly of the type PC<sub>[-pred]</sub>. I will show below that this distinction is crucial for my analysis.

As concerns the type PC<sub>[-pred]</sub>, the following main patterns occur:

- (26) a. a “cost per case” basis (N+prep+N)

<sup>9</sup>In the following I will use metonymic coercion which refers to the same operation which Jackendoff has simply called coercion to make clearer which type of coercion we are dealing with.

<sup>10</sup>Evidence of which was found by applying the respective query to the data with no result. What cannot be excluded at the moment is that PCs also occur with no special marking, for a discussion see Trips, 2012).

<sup>11</sup>This is the search query I defined: [word="(althislthatltheltheselthose)"] [pos="PUQ"] [pos!="PUQ"] {3,10} [pos="PUQ"] [pos="NN.\*"]. Since less than three words would yield non-phrasal compounds and since phrases bigger than ten words are very unlikely to occur, the span between tree and ten was defined. For information about the tags consult the BNC tagset based on the CLAWS-5 tagset at <http://ucrel.lancs.ac.uk/bnc2/bnc2guide.htm#tagset>.

- b. the “kind to hair” curlers (A+prep+N)
- c. a “ten to two” position (Num+prep+N)
- d. this “at a glance” guide (Prep+NP)
- e. the “language of thought” thesis (N+of+N)
- f. the “out of touch” policy (Adv+of+N)
- g. a “chicken and egg” situation (N+and+N)
- h. the “little and often” principle (Adv+and+Adv)
- i. a “before and after” basis (Prep+and+Prep)

All of the phrasal heads of this type either include some preposition (most frequently *of*) or the coordinating conjunctions *and* or less often, *or*. Most frequently nouns are linked with nouns by prepositions or conjunctions, but items of the word categories adjective, numeral, preposition or adverb can also occur.

As concerns the type PC<sub>[+pred]</sub>, the following main patterns occur:

- (27) a. a “work or starve” philosophy (conjoined verbs)
- b. the “pay now, go later” schemes (list of VPs separated by comma)
- c. that “powdering my nose” act (transitive verb with object)
- d. a “let’s get a sunlounger and lie on the sand” sort (whole conjoined VPs)
- e. this “Steffi is Great” attitude (copula construction)
- f. the “I knew as much” smirk (whole sentence introduced by subject pronoun)
- g. the “Whoops, sorry, we forgot you” Oscars (whole sentence introduced by interjection)
- h. that “I’ll ask my parents” line (whole sentence containing modal and lexical verb)
- i. the “why should it happen to me?” variety (question as non-head)
- j. a “Weather hot, cricket wonderful” postcard (sentence with elided verb)

From these examples we see that a wide variety of phrasal non-heads including a predicate occur, i.e., all types of verbs with all possible morphological inflections, with their arguments and with adjuncts, the elision of the verb, verbs in declarative main clauses as well as in questions (expressing illocutionary force), and sentences introduced by interjections as in authentic speech produced on the fly. Especially the latter pattern clearly shows that PCs do indeed contain non-lexicalised phrases as non-heads although in the corpus I also found quite a number of PCs which do show lexicalised phrases which could be classified along the lines of Jackendoff and Meibauer (see above), e.g. a “*have a nice day*” *culture* (quotation), or the “*snake in the tunnel*” *scheme* (idiom). In my analysis discussed below I will not discuss the lexicalised type in further detail since from a theoretical point of view it is not as interesting as the non-lexicalised one because they presumably have the same

status as lexicalised, non-phrasal, compounds like, e.g., *butterfly* which do not tell us anything about the morphology-syntax interface (see the plethora of literature on the topic). Thus, I will focus on the non-lexicalised type illustrated by the examples in (26) and (27).

## **3.2 A new account of phrasal compounds**

In section 2.3 I introduced Meibauer's conceptual-semantic classification of the heads of PCs. In a first step, I applied these to my data on the one hand to put its validity to the test, and on the other hand to identify similarities between the two languages. The result is given in the table below (non-exhaustive):

INDIVIDUAL	variety, category, brigade, community, people, writer, attorney, team, guardian, author, searcher, teenager, theorists, Greek-Cypriot, type, group, man, wife, whiner, watchdog, starfish, sir, searcher, psychologist, guru prisoner, player, person, junior, guru, gang, foe, fan, expert, crew, corporation, coalition, candidate, campaigner, party
PROPERTY	image, quality, style, look, smirk, nature, feeling, touch, sensuality, quality, power, face
CONCEPTUAL ENTITY	idea, approach, regime, experience, theory, basis, principle
ATTITUDE	philosophy, attitude, line, position, policy, ideology, syndrome, viewpoint, vein, standpoint, statement, thesis
ACTION	act, routine, tactics, strategy, scheme, campaign, smokescreen, action, activity, event, exhibition, programme, conference, lunch, situation
UTTERANCE, MEDIUM CONVEYING UTTERANCE	argument, message, gesture, story, speech, song, phrase, sound, chant, response, record, slogan, comment, report, refrain, proverb, sign, sticker, postcard, newspaper, banner, button, reader, book, letter, prospectus, chapter, section, album, LP, column, T-shirt, magazine, leaflet, guide, command, card, rhetoric, riddle, question, error, appeal compilation, tag, box
TIME	heyday, holiday, day, session, time, era, moment, episode, phase, week(end), period, stage
THING	jacket, Oscar, machine, sweetener, curlers

Table 1: Conceptual semantic classification of the heads of PCs

In the following I give examples for each of the semantic concepts of the semantic head for both types assumed here – the type PC<sub>[+pred]</sub> (indicated by (i)) and the type PC<sub>[-pred]</sub> (indicated by (ii)):

- (28) a. INDIVIDUAL  
 (i) We are left with the fun loving (overgrown kids) and *the “I am not going to miss out on the fun” brigade*. (HP6 1079)  
 (ii) According to different versions, [...] Adolf Wagner, and *the “blood and soil” guru* of Nazi agricultural policy Walther Darré, had been arrested for complicity in Hess’s “treason”, and some of them already shot. (ADD 143)
- b. PROPERTY  
 (i) Martinho was watching, with *that “I’ve got nothing to do with this” look* that he put on when he’d fucked things up good. (H9N 1983)

- (ii) The couples frequently face each other looking into each other's faces and appear to crouch over their feet slightly which emphasises *the "down to earth" quality* as most steps appear to go down into and not out of the ground. (A12 1627)
- c. CONCEPTUAL ENTITY
  - (i) Please try to avoid *the "does he take sugar?" approach*, ask the person in the chair directly "Would you like a push?" rather than ask their companion if they have one. (CHK 1298)
  - (ii) Certain types of contracts will be negotiated on a *"cost per case" basis*. (A10 1383)
- d. ATTITUDE
  - (i) He claimed that he was sick of *this "Steffi is Great" attitude* and he accused you of showing favour towards Steffi. (A0V 485)
  - (ii) For, paradoxically enough, it is *the "language of thought" thesis* which is closer to the layman's intuitions about thinking.
- e. ACTION
  - (i) They can't fool me with *that "powdering my nose" act*. (A0D 1728)
  - (ii) There used to be a *"chicken and egg" situation* that complicated the provision of appropriate services for ethnic minority elderly people.
- f. UTTERANCE
  - (i) If you are being pressurised by someone, use this tactic; it's *the "I'm just looking, thank you" or the "I'll go away and think about it" response* to the pushy salesperson. (CEF 1025)
  - (ii) The uniform group of objects that the programmer has when using an object-oriented model, also reduces the sting of *the "elegance and simplicity" argument* used against the proponents of semantic data modelling. (HRK 1727)
- g. MEDIUM CONVEYING UTTERANCE
  - (i) FREED from a lift in his Harare hotel, the Bearded Wonder sends us a *"Weather hot, cricket wonderful" postcard* from Zimbabwe. (K52 2291)
  - (ii) READING *the "Girls with a view" letter* criticizing men who are less than perfect wearing shorts in the present warm weather, saddened me. (K4L 432)
- h. TIME
  - (i) Radio brought the main news from the outside world; nuclear tests in the Pacific, civil rights marches in America, the coronation of Queen Elizabeth and *the "never had it so good" era* in Britain. (H7E 1024)
  - (ii) Many thanks to everyone who helped to make *the "Fitness for Fun" session* at Crystal Palace such a great success. (HX8 692)
- i. THING
  - (i) Most eventually got honorary Lifetime Achievement Awards – alias *the "Whoops, sorry, we forgot you" Oscars*, or even "Whoops, sorry, we didn't know you were still around", as happened to Sophia Loren in January, thirty years after she won Best Actress for Two Women. (ABS 2601)
  - (ii) To use *these "kind to hair" curlers*, simply twist a section of hair around each curler, bend the plastic antennae across the hair to hold it firmly in place and dry as normal. (CDJ 762)

Generally, Meibauer's conceptual-semantic classification can well be applied to the English PCs, although I added another category which expresses a conceptual

entity. The PCs I found are very similar to Meibauer's PCs for German which is not very surprising since both languages allow word-formation via compounding including (almost) all types of compounds. As concerns the different conceptual-semantic classes, I was able to find examples for both types of PCs I assume here, although overall there are differences in frequency, for example, PCs expressing an attitude, an utterance and a medium conveying utterance are much more frequent than those expressing an individual, a property or thing. Moreover, it seems that the type  $PC_{[-pred]}$  occurs with lexicalised phrases more often than the type  $PC_{[+pred]}$ . I will comment on these observations below.

Let us first turn to the type  $PC_{[+pred]}$ : The non-heads of all examples labelled with (i) in (28) are sentences, they contain a proposition which is based on truth values. If we now apply one of the basic functions which can fill out  $F$  in NNCs as proposed by Jackendoff (see section 2.2), the one which seems to come closest to the semantics of the PCs is BE (Y,X) meaning 'Y is (also) an X' since it is based on a predication relation. The examples Jackendoff gives for this relation are

- (29) a. boy king (*dvandva* compound)  
 b. witch doctor (objects which are a mixture of  $N_1$  and  $N_2$ )  
 c. tractor-trailer (objects composed of  $N_1$  and  $N_2$ )  
 (Jackendoff 2010a: 437f)

Comparing these examples with the PCs from my corpus reveals, however, that the relation is not the same, i.e. the PC the "*Steffi is Great*" attitude does not denote '“Steffi is Great” is (also) an attitude'. The same applies to the basic function KIND (X,Y) which denotes a relation among kinds. So whereas it is true that 'a puppy is a kind of dog' (*puppy dog*) this relation does not underlie the PC "*Steffi is Great*" attitude: it is not true that '“Steffi is Great” is a kind of attitude'. If we went through all the examples given in (28) and tried to apply Jackendoff's basic functions we would come to the conclusion that none of these underlie the PCs. To understand why this is the case, we have to compare an NNC with a PC in general terms: as mentioned above, the former type is based on the function  $F(X_1, Y_2)$  which yields the meaning of  $[N_1 N_2]$ . What is crucial is that the function  $F$  (or the relation  $R$ ), is underspecified, i.e., the variability of constituent meaning and a number of possible relations within the compound causes ambiguity (see e.g. Fanselow, 1981, Meyer, 1993; Jackendoff (2010a) calls this property *promiscuity* and suggest a slightly different definition), which is generally resolved by the context, world knowledge or inferencing. Based on these assumptions, an NNC like *puppy dog* could be interpreted according to the KIND relation but it could also be interpreted as e.g. "a dog



who eats puppies”. Although the type  $PC_{[+pred]}$  is an instance of compounding, it does not share this property with non-phrasal compounds: in the PC the “*Steffi is Great*” attitude the relationship between the phrasal non-head and the non-phrasal head is clearly defined, namely that “Steffi is Great” is an utterance which expresses an attitude. This applies to all other PCs of the type  $PC_{[+pred]}$ . This claim is corroborated by Meibauer’s experiment in which he took this property of compounds into account and investigated PCs in isolation and in context. What he found was that for his informants there was no significant difference in interpretation, in both cases they were evaluated as informative, understandable and witty. For NNCs however, a clear contrast could be observed, in isolation they were less understandable than in context.

Resulting from what I have said so far, I assume that the type  $PC_{[+pred]}$  is based on the following predication relation:

- (30)  $[_{State} \text{ IS-INSTANCE-OF } ([x; \text{TOKEN}], [y; \text{TYPE}])]$   
(Jackendoff 2010a:13)

PCs of the type  $PC_{[-pred]}$  (all the cases in (28) labelled (ii)) are not based on this relation but actually behave like NNCs although they have a phrasal non-head. An example like Lieber’s “*Charles and Di*” syndrome (see (5) above) which contains a phrasal head consisting of the coordinated proper nouns *Charles* and *Di* is as underspecified as the NNC variant *Charles syndrome* (or *Di syndrome*, respectively). The former could have a number of interpretations, for example, ‘a syndrome named after Charles’, ‘a syndrome of Charles’, ‘a syndrome occurring when Charles is around’, etc. and this also applies to the PC “*Charles and Di*” syndrome. The only thing which is specified is that there is a relation between *Charles and Di* and *syndrome* but what that relation is, is not clear. World knowledge, inferencing and the context will resolve the prevalent ambiguity but this also applies to NNCs. In other cases where the phrase has a lexicalised meaning as for example ‘unresolvable problem of the first cause’ (OED online) in a “*chicken and egg*” situation, the phrase does not have the properties of a transparent syntactic phrase, and if deconstructed into NNCs, we would have the same effect as with the “*Charles and Di*” syndrome (i.e., what is the meaning of a *chicken situation* or, an *egg situation*?). Phrasal non-heads like NPs, APs, PPs and AdvPs are determining the head like non-phrasal heads in NNCs (and other types like A+N etc.) and are part of the underspecified relation between non-head and head. Moreover, parts of these phrases can be omitted as shown above, which is not possible with PCs of the type  $PC_{[+pred]}$ . This shows that the structure of PCs belies their true nature, or put differently, it is not

the phrasal structure of PCs which is critical for an adequate interpretation but their conceptual-semantic properties. Under these assumptions, it is possible to provide a general account for the properties of all PCs which is graphically illustrated in Figure 1:

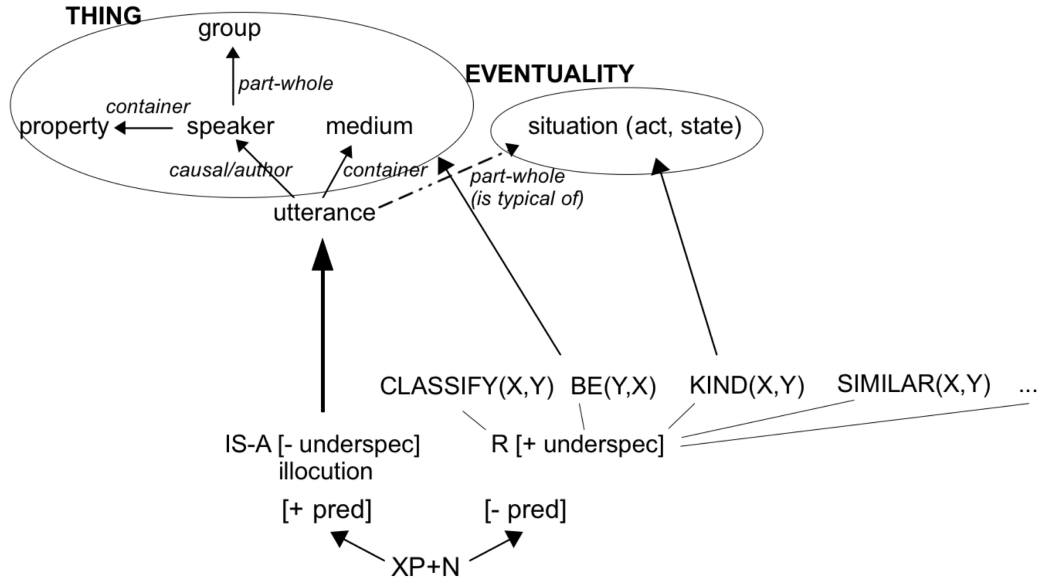


Figure 1: Conceptual-semantic structure of PCs

Phrasal compounds, presented in the figure as  $XP+N$ , fall into two classes, either they are of type  $[+pred]$  or  $[-pred]$ . If they contain a predicate in the phrasal non-head, they are based on the IS-A relation described above, which is specified. Based on this conceptual structure, two subtypes must be distinguished: a) the type where the utterance refers to the concept of THING, i.e. it has a nominal referent, and b) the type where the utterance refers to the concept of EVENTUALITY (cf. Varzi, 2002), i.e., its referent is a situation (an act or a state). In both cases the relation is specified in the sense that the phrasal non-head is an utterance which then may undergo metonymic coercion either from utterance to thing or from utterance to eventuality. The oval “clouds” contain these instances of metonymic coercion (indicated by the arrows) and metonymic shifts (indicated in italics in the arrow labels). In line with standard assumptions of Cognitive Grammar, I assume that metonymy is a conceptual phenomenon which can be defined as for example proposed by Panther and Thornburg (2007, 242):

- (31) a. Conceptual metonymy is a cognitive process where a source content provides access to a target content within one cognitive domain.
- b. The relation between source content and target content is contingent (conceptually nonnecessary), i.e., in principle defeasible.

- c. The target content is foregrounded, and the source content is back-grounded.
- d. The strength of the metonymic link between source and target content may vary depending, among other things, on the conceptual distance between source and target and the salience of the metonymic source.

As described above, type a) PCs differ from type b) PCs in that the former type refers to the cognitive domain of THINGS<sup>12</sup> and almost always shows type mismatches which are resolved by metonymic coercion whereas the latter type refers to the cognitive domain of EVENT(UALITIES) and shows only one metonymic coercion. As concerns the former type, the only exception here are heads of the type UTTERANCE like *response*, *argument*, etc. (see Table 1) where the relation between source and target content is direct, i.e., it can be expressed as “‘I’ll go away and think about it’ is a response”:

- (32) [State IS-INSTANCE-OF (I’LL GO AWAY AND THINK ABOUT IT),(RESPONSE)].

In all other cases of this type the relation between source and target content is indirect and therefore more complex because apart from the function *F* IS-INSTANCE-OF another function *G* is involved since otherwise the meaning of the non-head and the head could not link up semantically. This function *G* is an instantiation of metonymic coercion based on world knowledge.

For example, for a PC of type a) like a “*Weather, hot, cricket wonderful*” *postcard* we could say “Weather, hot, cricket wonderful” is an instance of an utterance which is somehow linked to a postcard. The meaning of postcard denotes that it is a medium on which something can be written but the phrase “Weather hot, cricket wonderful” evokes a prototypical situation where postcards with exactly that content are written, and this association is based on world knowledge. Note that a “*Steffi is Great*” *postcard* would not be interpretable along these lines. The function *G* filled out by CONTAIN includes this aspect of meaning in the following, tentatively suggested conceptual-semantic structure:

- (33) “Weather hot, cricket wonderful”<sub>1</sub> postcard<sub>2</sub> = [state IS-INSTANCE-OF (WEATHER HOT-CRICKET WONDERFUL<sub>1</sub><sup>α</sup>), CONTAINER (α, POSTCARD<sub>2</sub>)]

For a PC of type b) like *this* “*Steffi is Great*” *attitude* the speaker/writer producing this PC somehow connects “Steffi is Great” with an *attitude*. Again, since the

<sup>12</sup>In the following, the definitions of all relevant concepts are based on the classification of WordNet-3.1).

relation between the non-head and head is not direct, the hearer/reader has to use his or her world knowledge to find a situation in which it is typical to express an attitude with exactly this utterance. The hearer/reader has to type shift the utterance to an attitude which is an instance of a (psychological) state (for the notion of type shift see Pustejovsky, 1995, ch. 7). Metonymic coercion is the result and can be marked in the conceptual-semantic structure by function *G* which is filled out by PSYCHOLOGICAL STATE:

- (34) “Steffi is Great”<sub>1</sub> attitude<sub>2</sub> = [state IS-INSTANCE-OF (STEFFI-IS-GREAT<sub>1</sub><sup>α</sup>), PSYCHOLOGICAL STATE (α, ATTITUDE<sub>2</sub>)]

For illustration purposes, let us take a closer look at the interpretation of another PC<sub>[+pred]</sub>, *this “powdering my nose” act*. Again, the speaker/writer somehow links the utterance “powdering my nose” with an act, and this requires a situation or cognitive domain where powdering one’s nose is seen as being typical for that situation. The hearer/reader has to use his or her world knowledge to link the meanings of the phrasal non-head and head, and in this case a type shift from utterance to EVENT(UALITIES) occurs (in the figure labelled as “typical of”). The function *G* is filled out by ACTION:

- (35) “powdering my nose”<sub>1</sub> act<sub>2</sub> = [state IS-INSTANCE-OF (POWDERING-MY-NOSE<sub>1</sub><sup>α</sup>), ACTION (α, ACT<sub>2</sub>)]

In this case and in other cases, the utterance refers to a situation which is seen as being typical. In the latter case it refers to an act seen as a stereotype, i.e., the phrase is used as periphrasis to refer to a salient, lexicalised piece of information in one cognitive domain, which may even lead to using it as a euphemism (or subterfuge):

- (36) I’ll use your bathroom. To powder my nose, as nice girls say.  
(L. P. Davies *What did I do Tomorrow?* 1972, p. 72; OED online)

In the case of *the “I am not going to miss out on the fun” brigade*, the utterance “I am not going to miss out on the fun” conveys an attitude which is attributed to a group of people (*brigade* is used here to denote a social group). For a speaker/writer producing this PC there is a cognitive domain where a group of people typically utters this sentence, thus again metonymic coercion is evoked to link the non-head with the head. It seems that this case is more indirect than the other cases above since more instances of metonymic coercion are involved: first, a metonymic coercion from the utterance to an individual (causal/author), and second, a coercion from an individual to group (of individuals) via the part/whole relation:

- (37) “I am not going to miss out on the fun”<sub>1</sub> brigade<sub>2</sub> = [state IS-INSTANCE-OF (I-AM-NOT-GOING-TO-MISS-OUT-ON-THE-FUN<sub>1</sub><sup>α</sup>), AUTHOR (α, BRIGADE<sub>2</sub>)]

In almost all of the cases discussed so far, metonymic coercions explain the intended interpretation of the creators of these type of PCs which includes their processing on the part of the recipients. Although it appears as if they are maybe a too powerful tool, a “anything goes” mechanism so to speak, they are constrained, since a shift from source to target content is dependent on its cognitive domain. In Cognitive Grammar cognitive domain is defined as “a coherent area of conceptualization relative to which semantic units may be characterized” (Langacker, 1987, 488). This definition of cognitive domain reflects an encyclopedic view of meaning which allows to define the scope of concepts which are relevant for characterising the meanings of linguistic units (for an overview see also Cienki, 2007). If these assumptions are applied to PCs we can understand how they are interpreted by the speaker/hearer and that metonymic coercions are restricted by these domains<sup>13</sup>.

Coming back to Figure 1, the other type of PC which does not contain a predicate in the phrasal non-head ([*-pred*]) is highly underspecified (*R* [+ underspec]) and based on the same basic functions or relations which are generally assumed for NNCs: CLASSIFY(X,Y), BE(Y,X), KIND(X,Y), SIMILAR(X,Y), etc. Either these compounds can be interpreted directly on the basis of these functions or the operations of cocomposition and coercion are evoked to create more distant relations as indicated by the two arrows towards THING and EVENTUALITY (see again the examples given in section 2.2).

As concerns the PC *a “chicken and egg” situation* I assume a cognitive domain where the things *chicken* and *egg* are prototypical participants in a cyclic situation (Which of the two was there before, the chicken or the egg?) which cannot be resolved. The relation of *chicken* and *egg* to the situation is based on the part-whole metonymy, as a unit they denote a kind of situation via the metonymic coercion from THING (in a situation) to SITUATION (EVENTUALITY). The meaning of *a “chicken and egg” situation* then comes out as

- (38) [SITUATION<sub>2</sub><sup>α</sup>; [KIND<sup>β</sup> (CHICKEN-AND-EGG<sub>1,α</sub>); [PART OF (SITUATION, β)]]]

A further example of the same type would be *the “Charles and Di” syndrome* discussed above where the concept of INDIVIDUAL shows metonymic coercion

<sup>13</sup>In his 2003 paper, Meibauer has sketched an approach which is somewhat similar to the one proposed here since it is based on mental spaces.

to SITUATION (EVENTUALITY). Actually, most of the PCs of that type involve some metonymic coercion, which makes them resemble the PCs containing a predicate in the phrasal non-head (see below). This also applies to a case like *the “kind to hair” curlers*. The first part describes the kind of curlers (THING) we are dealing with and denotes their quality, i.e., they are the type of curlers which are kind to hair.

- (39) [CURLERS<sub>2</sub><sup>α</sup>; [KIND<sup>β</sup> (KIND-TO-HAIR<sub>1</sub>, α); [PROPERTY (THING, β)]]]

A rather tricky case is the PC *the “little old lady who’s lost her ticket” routine*: the phrasal non-head is the NP *the little old lady* modified by the relative clause *who’s lost her ticket* which contains a predicate. Thus, we could either assume as we have done for the other cases of the type PC<sub>[−pred]</sub> that when we omit the relative clause we gain the *the little old lady routine* which is as underspecified as any PC<sub>[−pred]</sub>, or we could assume that since a predicate is contained in the whole of the phrasal non-head, the whole compound is a PC. What speaks in favour of the latter assumption is the difference in meaning between the compound with and without the relative clause. Only in a specific context would we be able to define its meaning if it was omitted:

- (40) I know a little old lady who regularly loses her tickets and gets through with it in trains. Well, in this way she saves a lot of money. The other day I was in the train and realised that I forgot to buy a ticket. What I did was then try “the little old lady” routine.

We would indeed need a lot of contextual knowledge to define the meaning of the compound, contrary to what we find with the “*the little old lady who’s lost her ticket*” routine. This could imply that it is the relative clause “who’s lost her ticket” containing a predicate which is critical for fulfilling the IS-A relation. If we take a look at the semantics of *routine* the concepts EVENT, ACTIVITY and especially PROCEDURE become relevant. A routine is a habitual procedure someone initiates to achieve a result, which implies an activity which is bounded. This semantic aspect is also found in the sentence “who’s lost her ticket”. This part of the semantics of *routine* is cocomposed with the utterance describing the routine. Thus, for the moment I would suggest this analysis and the following structure:

- (41) “The little old lady who’s lost her ticket”<sub>1</sub> routine<sub>2</sub> = [state IS-INSTANCE-OF (LITTLE-OLD-LADY-WHO’S-LOST-HER-TICKET<sub>1</sub><sup>α</sup>), BOUNDED (α, ROUTINE<sub>2</sub>)]

Next, I would like to come back to the morphopragmatic properties of PCs and the claim that the model of PA can better account for them since the conceptual-semantic structures assumed in this model include pragmatics, or put differently, that no distinction is made between semantics and pragmatics as is generally assumed in Cognitive Grammar. I will first provide some examples which have been put forward in the literature to corroborate this assumption, and I am going to start with Nunberg's famous example of the *ham sandwich*:

- (42) The ham sandwich is sitting at table 20.  
(Nunberg, 1979, 149)

The compound *ham sandwich* does generally not denote a customer with a ham sandwich, nor is there anything in the sentence that would license such a reading. One way to explain this reading, is via a coercion rule that can be stated the following: 'A constituent identifying an individual X may be used/understood to identify an individual contextually associated with X' (Jackendoff 2010a:141), which we can relate to cognitive domains discussed above. So this rule allows the insertion of non-lexical, pragmatic material into the conceptual structure of a sentence. The fact that the literal interpretation of (42) is ill formed shows that the rule does not overgenerate and produce chaos. It also shows that conceptual structure of an utterance includes both the part which is directly related to linguistic expression and the part which arises through world knowledge, inferencing, and context. As Jackendoff points out "... the same sorts of structures can arise through multiple sources, often overlapping and intertwining in the complete structure" (2010a:8). Culicover and Jackendoff (2005, 229) note that (metonymic) coercion is indeed restricted to certain conventionalised contexts (what I have called "cognitive domain" above). For Nunberg's *ham sandwich* they assume the following conceptual structure:

(70) <u>Conceptual structure</u>	<u>Syntax</u>	<u>Phonology</u>
CS: [WANT ([PERSON WITH [SANDWICH]], COFFEE )]		
i. [WANT (X , Y )]	$V_1$	want <sub>1</sub>
ii. [PERSON WITH $Z_i$ ]	$N_i$	
iii. [SANDWICH] <sub>2</sub>	$N_2$	sandwich <sub>2</sub>
iv. [COFFEE] <sub>3</sub>	$N_{\pm 3}$	coffee <sub>3</sub>

For them, metonymic coercion is encoded as a lexical item without phonology and syntax (apart from a contextual feature). What we find in syntax is the semantic argument of the coercion (*sandwich*, given as  $Z_i$  in ii.). Thus, it appears as a syntactic argument of want, i.e., as its subject.

In the same vein, Panther & Thornburg (2007) assume that metonymies relate to both semantic reasoning and pragmatic inferencing. They point out that

The ubiquity of metonymy can be interpreted as an indication that there is a continuum between linguistic meaning and communicative use rather than a strict division of labor between two autonomous components, semantics and pragmatics.

(Panther and Thornburg, 2007, 236)

Therefore, we can conclude that it is feasible to assume that conceptual structure contains material to satisfy the pragmatics of discourse of extralinguistic context and that there is no need to assume two demarcated components of semantics and pragmatics.

We have seen that metonymic coercion plays a crucial role in explaining the nature of PCs. Based on the observations made above, we could then say that the expressive flavour of PCs discussed in section 2.3 results from the strength of the metonymic link between source and target content (see (31) d.). More precisely, the more indirect a metonymic link is between the source and target content, the wittier a PC is. Coming back to the *ham sandwich* in (42) it seems that it is the unexpectedness of the sandwich to sit at a table (or in more general terms the impossibility of an edible object to act like an animate entity), which triggers by metonymic coercion. Here the conceptual distance between a person and a ham sandwich is considerable and the effect is a high degree of wittiness. Cases where no metonymic coercion occurs would therefore be perceived as being less witty. This seems to be borne out:

- (43) a. If you are being pressurised by someone, use this tactic; it's the "I'm just looking, thank you" or the "I'll go away and think about it" response to the pushy salesperson. (CEF 1025)  
=> no metonymic coercion, less witty
- b. Most eventually got honorary Lifetime Achievement Awards – alias the "Whoops, sorry, we forgot you" Oscars, or even "Whoops, sorry, we didn't know you were still around", as happened to Sophia Loren in January, thirty years after she won Best Actress for *Two Women*. (ABS 2601)  
=> metonymic coercion, more witty

A further property relevant for the expressive flavour is that very many of the PCs express a stereotype. According to Levinson, lexical items have the potential

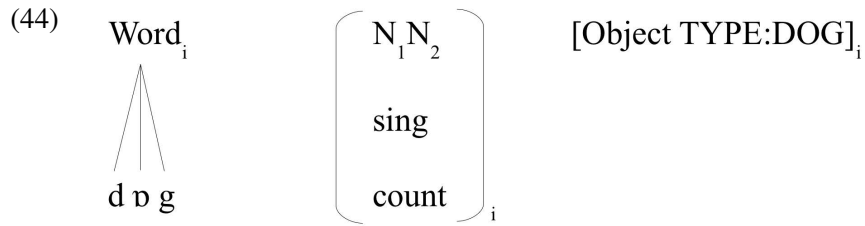


to implicate stereotypical default readings, so “What is expressed simply is stereotypically exemplified” (2000:37). It is the interplay of these rules that can account for the properties of PCs.

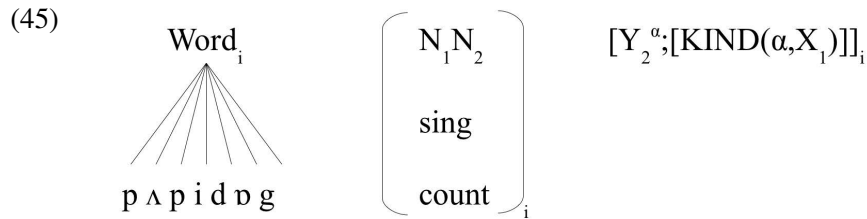
In section 2.3, Meibauer’s definition of the expressivity of PCs was discussed. Meibauer claimed that enrichment and informativity (based on a conflict between Levinson’s I and Q principle) on the structural level are critical for explaining this property. But perhaps it is not the structural level but the conceptual level which plays the decisive role, as has been suggested in this paper. Papafragou (1996) defines two communicative reasons for using metonymies: on the one hand metonymies cause extra processing effort which is “leveled out” by a gain in contextual effects (additional implicatures). On the other hand, the processing effort may be smaller than that for a literal expression of the metonymic sense. If we applied the latter communicative reason to Meibauer’s assumptions and to the production of PCs, we could say that producing this type of compound leads to enrichment via metonymic coercion, i.e. to additional contextual effects, which does not apply to the same degree to NNCs since they will always show a high level of underspecification. What we automatically gain is a maximum of informativeness, so from this point of view, it is not a conflict that arises. Although the cognitive effort is greater, it is still the most economical way to get to enriched conceptual information within a word, thus a PC will be preferred over an NNC because it is wittier (distance between target and source content) and more understandable (more enriched, more transparent). This may also be the reason why speakers/writers decide to use a PC instead of a syntactic construction, i.e., a mere sentence.

### **3.3 Phrasal compounds and the mental lexicon**

Finally, I am going to deal with a psycholinguistic aspect of PCs, namely how they are stored and processed in the mental lexicon. In line with Jackendoff’s model of PA, I assume that a word is a long-term memory association of phonological, syntactic, and semantic features. So the lexical entry for a word like *dog* would list a small chunk of phonology, syntax, and semantics as well as information on how these pieces of information are linked (subscripts denote parts of the features which correspond):



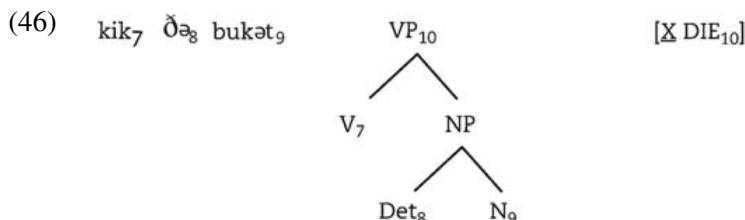
The same applies to NNCs with (partially) idiosyncratic meanings stored in long-term memory:



The principle which is determining here is the one which concatenates two nouns into a bigger noun as well as the pragmatic properties of the meanings of the words taking part in compounding. This implies that syntactic structure is not required (Jackendoff refers to these as “fossil principles” (2002, 249); see also above where the notion of compounding as a protolinguistic “fossil” was mentioned).

What should be kept in mind is that although sentences produced on the fly are likely to be constructed online, they need not be (e.g. while reading this paper you have been exposed to the PC “*powdering my nose*” *act* several times, so there is a chance that it has become a larger stored unit in your lexicon). This observation, which of course has been made before by many linguists, speaks against a strict lexicon-grammar distinction and sees words and rules rather as pieces of stored structure. This point of view allows for a continuum from online construction to long-term memory storage. In the PA (Jackendoff, 1983, 1990, 2002, 2007, 2008, 2010b, Culicover and Jackendoff, 2005), “[a] word is itself a kind of interface rule that plays a role in the composition of sentence structure” (Jackendoff, 2007, 9). Thus, words like *puppy* and *puppy dog* are interface rules which mediate between the three components of language—phonology, syntax, and semantics—and due to the independence of these components, lexical entries larger than a word can be stored in long-term memory, along with idiomatic meanings, and even pieces of structure which lack inherent meanings. In the following I am going to illustrate this claim by briefly discussing the analysis of idioms in the PA before I am going to show parallels to the properties of PCs.

Idioms can be defined as being fixed syntactic constructions which are composed of words already existing in the lexicon but with a meaning which cannot be predicted from the meaning of its parts. The lexical entry of one of the many idioms which exist in English, *kick the bucket*, is given in (46), (cf. Jackendoff, 2007, 11, see also Jackendoff, 1975):



The idiom is a lexical VP with internal phonological and syntactic structure which is shown by the links (subscripts) between the phonological and the syntactic pieces of information. The meaning, however, is not linked to the individual items but to the VP as a whole (subscript 10). Apart from this type of idiom, there is a type called constructional idiom (Jackendoff, 2002, 172ff) which includes free variable positions concerning the VP. Subtypes are the *one's head off* construction, the *way* construction, the *time away* construction, and the resultative construction, formalisations of which are given in (47):

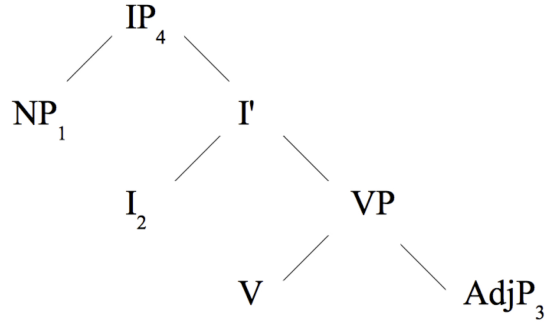
- (47)    a. [<sub>VP</sub> v NP PRT]: V pro<sub>e</sub>'s head off; 'V excessively'  
               *She sings her head off.*
- b. [<sub>VP</sub> v NP pp]: V pro<sub>e</sub>'s way PP; 'go PP while/by V-ing'  
               *Bill belched his way out of the restaurant*
- c. [<sub>VP</sub> v np PRT]: V NP[time period] away; 'spend N PV-ing'  
               *We're twisting the night away.*
- d. [<sub>VP</sub> v np ap]; 'cause NP to become AP by V-ing ((with it)'  
               *Wilma watered the tulips flat.*  
               (Jackendoff, 2002, 172ff)

What these types of idioms all have in common is that although their meaning is fixed, their structure is less fixed, i.e., they are lexical items which have the potential to undergo free combination with verbs. The verb itself does not determine the syntactic argument structure of the VP, rather it is the construction as a whole which does, and the verb saturates a free position in the construction.

If these types of idioms are now compared to the PCs we have been investigating so far, I would claim that the two phenomena are similar in that they are both constrained syntactically and semantically, but that they also differ, and that this difference can be defined by the way they are constrained.

Let us illustrate the differences with the example *this “Steffi is great” attitude* and the lexical entry I assume for this PC:

(48)  $\text{stefi}_1 \text{iz}_2 \text{greit}_3$



The utterance “Steffi is great” is a fully transparent phrase with transparent links between the phonology-syntax and syntax-semantics interface. Here we see a difference between PCs and idioms since one of the defining properties of the latter is that they do not show a transparent relation between syntax and semantics. If a speaker/writer simply utters/writes this sentence as such, a hearer/reader will analyse it as a sentence with the semantic interpretation that “Steffi is great” denotes a state. In the process of lexical insertion, the lexical entries are inserted onto deep phrase markers which conform to the syntactic structure of the lexical entries. But since we are dealing with full sentences here, their structures go beyond the word level and therefore they must be inserted onto a complex of deep-structure nodes. Nevertheless they have the status of words because if a speaker/writer introduces the utterance by a determiner and concatenates it with a following noun, a hearer/reader will recognise immediately the structure of a compound because of the morphological redundancy rule

$$(49) \quad \left[ \begin{array}{c} /x[y]/ \\ +N \end{array} \right] \leftrightarrow \left\{ \begin{array}{c} \left[ \begin{array}{c} /x/ \\ +N \end{array} \right] \\ \left[ \begin{array}{c} /y/ \\ +N \end{array} \right] \end{array} \right\}$$

which determines the properties of the lexical item. At this point, the list of actually occurring NNCs is checked and since the conceptual-semantic interpretations available do not match the PC, the process of type matching (metonymic coercion) between the conceptual-semantic structure of the utterance  $[\text{State IS-INSTANCE-OF } ([x; \text{TOKEN}], [y; \text{TYPE}])]$  and the head noun kicks in. This implies that the morphological redundancy rule triggers the type matching process and allows for non-head items bigger than a word. This applies to all types of PCs discussed in

this paper. This account then has the important virtue of explaining the properties of a “marginal” type of compounding in terms of already existing rules for the general type of N+N compounding. Moreover, it parallels the analysis of idioms since speakers/hearers use already existing rules (for the idioms phrase structure rules like e.g. ‘a verb followed by a noun phrase forms a verb phrase’) as morphological redundancy rules. As Jackendoff (2010a, 75) points out “Since the base rules [these rules] can be used as redundancy rules only if lexical entries go beyond the word level, no descriptive power is added to the grammar outside the description of idioms”, and after what I have shown I suggest to add PCs here.

Finally, I would like to come back to Jackendoff’s claim that compounding is a protogrammatical phenomenon. The two properties which motivate this assumption are the rudimentary grammatical structure of compounds and their semantic interpretation which results from a relation between the head and non-head as well as from the context in which they occur. As concerns the first property, it does not seem feasible to state that the complex phrasal non-head can be defined as rudimentary grammatical structure. The non-phrasal heads of PCs containing a predicate were (mostly) complete sentences containing a verb, showing morphological inflections, and conveying proper functions of sentences like expressing illocutionary force. In the analysis proposed, semantically these phrases are all based on the IS-A relation, which is a relation more specified than any relation between a nominal non-head and head (but not more complex). On the other hand, it was claimed that the morphological redundancy rule of N+N compounding determines the formation of both NNCs and PCs, as well as metonymic coercion which is constrained by cognitive domains. Thus, it seems that in this respect PCs are not defined syntactically and that they very much resemble NNCs. To answer the question of whether the type of PCs containing a predicate in the phrasal non-head are a protogrammatical phenomenon or not, I think the critical point is that these PCs are always based on one semantic relation—the IS-A relation—which includes a verb and syntactically surfaces as more structure<sup>14</sup>. This also means that the underspecification of the relation between the parts in compounds is not given and that the context of these PCs is not as relevant for their interpretation as for PCs of the type [–pred] which as well as NNCs which is in line with Meibauer’s (2007) findings. Therefore, the PC<sub>[+pred]</sub> type is best seen as a modern modification of the protogrammatical phenomenon of non-phrasal compounding.

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<sup>14</sup>which also includes inflectional morphology, a property absent in protolanguage, cf. Klein and Perdue, 1997).

## 4 Conclusion

In the concluding section I would like to summarise my findings and assumptions. First, I have provided a full account of PCs in English in the model of the Parallel Architecture. I have argued for an approach which analyses PCs not on the phrasal (syntactic structural) level but on the conceptual-semantic level. The result was that PCs fall into two sub types, a type which contains a predicate in the phrasal non-head ( $PC_{[+pred]}$ ), and a type which lacks a predicate ( $PC_{[-pred]}$ ). For the former type I have assumed the IS-A relation and therefore I suggest to include this function into the set of functions available for the interpretation of compounds in general. The latter type can be attributed to NNCs since they are based on the same basic functions and devices.

In section 2.3 I discussed Meibauer's explanation for the morphopragmatic character of PCs who proposed that it could be defined in terms of expressivity and wit-tiness. Expressivity results from a conflict between Levinson's (2000) I-principle and Q-principle, i.e., in PCs the phrasal non-head is more informative than any non-phrasal head in an NNC but also less expected due to the Maxim of Minimization. In the analysis proposed here, this conflict can be explained by the interplay between the IS-A relation for the first type of PC, and basic functions for the second type of PCs, the morphological redundancy rule for NNCs, type (mis)matching and, as a result, instances of metonymic coercion. Under these assumptions, "more informative" means that the relation between the phrasal non-head and the non-phrasal head is more direct and less underspecified than the relation between a nominal non-head and a head, and that the conflict is resolved as soon as speakers/hearers interpret a PC along the lines of the morphological redundancy rule. Either a direct link can be established between the non-head and the head (see above the interpretation of the example "*Weather hot, cricket wonderful*" postcard) or a type mismatch occurs that is resolved by metonymic coercion (e.g. this "*Steffi is great*" attitude) which is restricted by the cognitive domains in which it occurs. Thus, Meibauer's assumptions can easily be transferred to the analysis based on Jackendoff's model of PA.

A clear advantage of this analysis over all the others which have been put forward so far is that it can explain the occurrence of the phenomenon *per se* as well as its markedness on the morphopragmatic level compared to other types of compounding (and word-formation) in one fell swoop. It has also become clear that it is not the phrasal structure of PCs which is critical for an adequate interpretation but their conceptual-semantic properties as well as morphological rules. Since syntax does not play a role and there is no strict lexicon-grammar distinction, constraints

like the *No Phrase constraint* cannot be evoked. I believe that the empirical and theoretical investigation of this phenomenon has shown that generally other models than the traditional generative one should be taken into account as well when investigating morphological phenomena since only then do we get further insights into the nature of morphology, and the architecture of grammar.

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