How to account for the expressive nature of phrasal compounds in a conceptual-semantic framework

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This paper discusses the expressive nature of phrasal compounds (PCs) in English (and German) and proposes an analysis in a conceptual-semantic framework like 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. I assume that the nature of PCs can only be understood if their conceptual-semantic properties are taken into account. From this follows that a model which only looks at the surface syntactic appearance cannot satisfyingly provide an analysis of PCs. On the basis of some studies on the expressive nature of German PCs, English PCs gained from the British National Corpus (BNC) will be investigated. I will show that the types of PCs occurring in both languages are the same and that the conceptual-semantic classification assumed for German PCs can be applied to the English PCs. Second, I will sketch an analysis that explains the special semantic properties of PCs by assuming a difference between PCs containing and predicate and PCs not containing a predicate. Further, the interplay between these properties, the morphological redundancy rule for NNCs, type (mis)matching and, as a result, instances of metonymic coercion can account for the "expressive flavour" attributed to PCs. 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[1] investigates the nature of (English) Noun-Noun compounds (NNC) and proposes an analysis in his model of the Parallel Architecture (henceforth PA; Jackendoff 1997, Jackendoff 2002). He provides a number of examples for 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: 414ff)

One of the main structural properties of compounds is that they have a head which determines the grammatical specifications of the compound (cf. the *Righthand-Head-Rule* (Williams 1981) and the *Head Principle* (Selkirk 1982)). A further property attributed to compounding is recursivity (explicitly indicated by the addition of nominal material in

brackets in (1) a.). A further property is that compounds are subject to lexicalisation which results in "... a form [of a lexeme CT] which it could not have if it had arisen by the application of productive rules" (Bauer 2002: 48). Another definition of lexicalisation is the adoption of a word into the lexicon which stresses the storing and processing of lexemes (see also the discussion in Brinton and Traugott 2005). Example (1) a. is an example of a lexicalised compound, whereas (1) b. can be seen as a compound novel to many speakers. 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.). 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. As we will see, for Parallel Architecture compounding does not pose a problem in this respect because no strict line is drawn between freely generated 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) which is to say 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 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 take the view that Jackendoff's analysis of compounding is indeed quite attractive since it accounts for compounds by looking at their conceptual-semantic properties, which allows us to include the more elaborate, quasi-syntactic type (cf. Levi 1978, ten Hacken 1994), the so-called phrasal compounds (henceforth PC, see examples (1) c. to f.) above). Although the phenomenon of PCs has been addressed in the literature (e.g. Botha 1981, Lieber 1992, Lieber and Štekauer 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). However, it has been noted by some of these authors that PCs pose problems for morphological theory because they integrate a whole phrase into a word and thus violate 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 (for discussions on this aspect see Lieber 1988, 1992, Štekauer and Lieber 2009, Scalise and Bisetto 2009 for English, Gallmann 1990, Wiese 1996, Meibauer 2003, 2007 for German). I will show that a model like the PA, which is not based on these tenets, is able to handle PCs in a more satisfying way because it allows us to see conceptual-semantic differences between

PCs that syntactically look the same (i.e. the non-heads are all phrases).

A further property peculiar to PCs is their special expressive flavour which has been attributed to their "morphopragmatic" character (Meibauer 2003, 2007). For Zwicky and Pullum expressive morphology "... is associated with an expressive, playful, poetic, or simply ostentatious effect of some kind ..." (1987: 5; for further discussions of expressives or expressive morphology see e.g. Bauer 1997, Potts 2007, Meibauer 2013). The examples below serve to illustrate these properties (the determining, first part of the compound consists of a whole sentence given as quotation):

(2)   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)

(3)   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)

(4)   There used to be *a "chicken and egg" situation* that complicated the provision of appropriate services for ethnic minority elderly people.

In (2) and (3) full sentences, i.e. propositions, make up the phrasal non-head and, as a result, different types of illocutions (exclamations, commands, etc.) are expressed. This is not the case in (4) although this type of compound is formally classified as a PC as well. Moreover, the semantic relation between the phrasal non-head and the head in PCs including a full sentence (for example *"Learn what is there and don't question it"* and *attitude*) differs from PCs which include phrases smaller than full sentences (for example *"chicken and egg"* and *situation*). It is these aspects that should be accounted for if we want to fully understand the nature of PCs.

Because of their expressive properties Meibauer (2007: 233) has categorised PCs as a marginal type of word-formation. As we will see in section 3 for Meibauer the expressivity of PCs arises out of a conflict between two pragmatic principles (the I(nformativeness)-principle and the Q(uantity)-principle). I intend to 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 metonymy 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), I will briefly illustrate the differences between a generative syntactocentric model à la Chomsky and a parallel model à la Jackendoff by discussing some analyses proposed so far for PCs. In section 3 the morphopragmatic properties or expressive flavour of PCs will be investigated by discussing Meibauer's (2003, 2007) findings which will become relevant for my analysis. In section 4 findings from a study of PCs in the *British National Corpus* (BNC) will be presented which

will serve as the empirical basis for an analysis 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 the proposed analysis based on Jackendoff's PA and Meibauer's definition of the expressivity of PCs will be sketched. Section 5 provides some ideas of how PCs are processed and stored in the mental lexicon. Section 6 summarises the overall results of the paper and concludes.

2. Analysing phrasal compounds

The classical generative framework has the following properties: it is syntactocentric, derivational, and it clearly separates the lexicon from grammar (cf. Chomsky 1981, 1995; for comments on this model see 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 lexicalist theories of morphology which are based on these tenets all morphemes, bound or free, are listed in the lexicon with information concerning their syntactic category (e.g. Lieber 1981). Compounds are generated by applying phrase structure rules of the type $N \rightarrow \{N, A, V, P\}$ N (e.g. Selkirk 1982). What is crucial is that the semantics of the words combining to become a compound are not considered, it is only the syntactic status of words that is relevant. What is more, the strict separation of morphology and syntax led to the stipulation of (different versions of) the *Lexicalist Integrity Hypothesis* (LIH) which roughly states that rules of morphology and rules of syntax cannot interact (cf. Chomsky 1970, Lapointe 1980, Selkirk 1982, Di Sciullo and Williams 1987). In Lieber's (1992) syntactic account of morphology the lexicon does not contain any word formation rules, and all 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 complex words are built in syntax, Lieber rejects the LIH. For her, PCs are located at "... the fringes of morphology, so to speak, where the syntax of words and that of phrases seems to converge" (Lieber 1992: 11). She gives the following examples which all show that the left-hand member is a complex, maximal phrase:

(5)   a.   the [Charles and Di] syndrome → coordinated NP
        b.   the [over the fence] gossip → PP
        c.   a [slept all day] look → VP
        d.   a [who's the boss] wink → CP   (Lieber, 1992, 11)

Since PCs are built in syntax in her framework, she has to modify the X-bar schema which results in the recursion below X° leading to the following structures for PCs:

(6)   a.   X°
                          ╱   ╲
                      YP   X°

b.　　　　X°
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          X°
         /  \
       X°    YP
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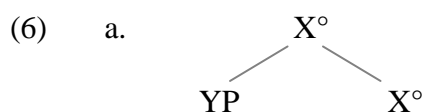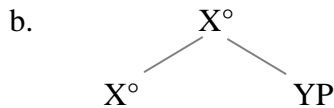
By postulating that PCs are built in syntax, Lieber makes syntax even more complex and powerful resulting in an overgeneralisation of structures which are not attested (for a detailed discussion see Meibauer, 2003). Moreover, this automatically implies that PCs are generally semantically compositional, i.e. transparent, an assumption that is not supported (cf. Gallmann 1990, Wiese 1996, Meibauer 2003).

For Meibauer (2003, 2007) an analysis of PCs in a mixed model (Borer 1998) like that of Ackema and Neleman (2004) seems to be more promising. The authors assume that Phrasal Syntax and Word Syntax are independent structure-generating modules which run simultaneously, that they are symmetrical and interact with each other. Concerning the analysis of NP + X compounds[2] 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 intoWord 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 whereby presumably the nominal features of the NP non-head and the N head are matched. However, for PCs where the non-head is an IP or a CP, it is not clear at all which categorial feature should be checked. This is why Meibauer (2007) suggests that the non-heads should be seen as "building blocks" (in the sense of Ackema and Neleman) rather than items which undergo the feature matching process. Further, since in Ackema and Neleman'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 non-phrasal compounds. In more theoretical terms, 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 section 3).

This brief discussion of analyses in a syntactocentric, derivational framework illustrates that the formal (syntactic) properties of PCs are taken to be the all defining factor, and, as a consequence, there is no mention of their conceptual-semantic properties, let alone their expressive flavour or morphopragmatic properties.

Jackendoff's model of PA stands in stark contrast with the generative model discussed above. He assumes a model of independent generative components where semantic structures are built in the semantic component which is linked via components of interface rules to the syntactic and phonological component. All of these components have their own primitives and principles of combination. Crucially, 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" (2010: 17).

Further, Jackendoff's grammar model is constraint based and inherently non-directional lacking the strict distinction between the lexicon and grammar. Under these assumptions, units larger than one word (which would include PCs) 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 Bickerton's insights concerning the evolution of language. According to Bickerton (1990), 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 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). In line with Bickerton's insights Jackendoff assumes that compounding is a protogrammatical phenomenon as well, 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 Trips, 2006). Since compounds do not seem to be sensitive to syntactic category (compare e.g. the semantically indistinguishable compounds *atom bomb* (N+N) and *atomic bomb* (A+N)) 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 generally does not function as the internal argument of the verb (e.g. *window shop* ≠ 'to shop windows') further corroborate this assumption (for Ackema and Neleman (2004) the syntactic relation cannot be expressed in syntax which results 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). The question is whether the phenomenon of PCs should be added here because the complex syntactic structure of the non-head does not seem to be relevant for their interpretation. If this is the case, PCs can be defined in terms of phonological and semantic properties including aspects of meaning which are pragmatically derived. Before we will discuss this issue in section 3, we will briefly deal with Jackendoff's account of NNCs to see which assumptions he has to make.

In line with traditional analyses of NNCs, 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 $F(X_1, Y_2)$ 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:[3]

(7) $[N_1 N_2] = [Y_2; [F (..., X_1, , ...)]]$
        'an N_2 such that F is true of N_1 and N_2'   (Jackendoff, 2010, 434)

It has been stated by many authors (e.g. Downing 1977, Meyer 1993) that although a number of relations between N_1 and N_2 can be identified, an NNC has the property of being semantically underspecified. Jackendoff lists the fourteen most prominent basic functions for NNCs, for example CLASSIFY (X,Y) (*helicopter attack*), BE (Y,X) (*maiden aunt*) or KIND (X,Y) (*puppy dog*). 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 out functions with internal semantic structure of N_1 and N_2; for a detailed account see Jackendoff 2009,

2010a). One example where the operation of cocomposition is relevant is (8):

(8)   water$_1$ fountain$_2$ = [FOUNTAIN$_2{}^\alpha$; [PF (FLOW (WATER$_1$, OUT-OF α))]]

(Jackendoff, 2010a, 443)

Here, the proper function (PF) of *fountain* is 'liquid flows out of' where the modifier *water* can fill out the content of F: the PF of *fountain* cocomposes with *F* to produce the semantic structure.

In 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:

(9)   pig$_1$ tail$_2$ = [HAIR$^\alpha$; [SIMILAR (α, [TAIL $_2{}^\beta$; PART (β, PIG$_1$)])]]

(Jackendoff, 2010a: 447)

Although we have not included PCs into the discussion so far, by looking at Jackendoff's analysis of NNCs we clearly see differences between a parallel and a syntactocentric framework. First, since in the former semantic structures are not built out of syntactic units, Jackendoff's compound schemata are based on the conceptual semantic structure of NNCs and not on their syntactic shape. Second, these compound schemata can be quite complex under the assumption that the meaning of NNCs can be quite complex. An analysis of PCs in this framework presupposes that the conceptual semantic structure of this type of compound is correlated with syntactic (and phonological) structure by a component of interface rules. Third, PCs have an expressive flavour which can be defined in terms of special morphopragmatic properties. In Jackendoff's framework there is no distinction between semantics and pragmatics which is why aspects like inference, world knowledge, and understanding of the context are part of the semantic component. For Jackendoff, the principle of coercion accounts for these aspects. This process, which has also been called "enriched composition" (Pustejovsky 1991, 1995, Jackendoff 1997), 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 is illustrated with Nunberg's famous example of the *ham sandwich*:

(10)   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 ((11) a.), nor could the original referent be bound with a reflexive ((11) b.).

(11)   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 (cognitive) principles, one being that the source of the transfer is salient in a special situation or domain. It is this aspect that can explain the nature of PCs containing a full sentence as I will demonstrate in section

4. In the following section, we will take a look at a further peculiarity of PCs and an analysis suggested by Meibauer to account for it.

3. The morphopragmatics or expressive flavour phrasal compounds

In his 2003 paper Meibauer makes a distinction between PCs which have a lexicalised non-head and PCs where the non-head is non-lexicalised, i.e. not stored in the lexicon as a whole unit. Although Meibauer found quite a number of PCs of the former type, he also found PCs where a lexicalised status of the non-head cannot really be assumed:

(12)   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 which is to say 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:

(13)   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:

(14) a.   Seit geraumer Zeit grassiert unter Prominenten$_i$ eine neue Krankheit: *das*
            'For some time a new illness has raged among the VIPs: the "I-let-take-
            "Ich$_i$-lass-mich-fotografieren-und-kassier-dafür"-Fieber.
            pictures-of-me-and-clean-up"-fever'
      b.   Alle Spiele sollen wie in *der guten, alten Ich-wasch-mein-Auto-vor-der-*
            'All games should take place as in the good old I-wash-my-car-in-front-of-the-
            Haustür-Zeit am Samstagnachmittag stattfinden.
            door-time'   (Meibauer 2003:178f)

The example in (14) a. shows an anaphoric relation between the *Prominenten* ('VIPs') and the subject pronoun *ich* ('I'), where the referent of *ich* is a subset of the referents of *Prominenten.* In the example in b. no such direct link to elements in the discourse exists, 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 confirmed 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), and about the social, cultural and historical context of some quotations ("Keine-Macht-den-Drogen" 'No power to drugs'). It seems that most of the PCs are built on the spur of the moment as a kind of reaction to current situations, and that they attract attention not only because of their form but also because of the fact that they are stylistically marked.

In his 2007 paper, Meibauer claims that the markedness of PCs is not only due 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, see section 1) PCs have not been taken into account. Zwicky and Pullum (1987) 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 *fucking* 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 compared NNCs with phrasal compounds. As discussed in section 2, 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. The notorious example to illustrate this property is Bauer's *world sky* (2002: 46), another is:

(15) 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) given in (16):

(16)   *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)

         Another such principle is *the Principle of Quantity* (henceforth Q-principle):

(17)   *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)

Meibauer assumes that when a speaker chooses to produce a PC instead of an NNC a conflict between these two principles arises: 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-stayfriends platitude*, we find that the non-head 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, 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:

(18)   *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 having 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:

(19)   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: 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)

As alternatives to the PC Meibauer provided the following formations:

(20)   a. Autokärtchen
       car card$_{DIM}$
       b. Kaufkärtchen
       buy$_{V/N}$ card$_{DIM}$
       c. Kaufe-Ihr-Auto Kärtchen
       buy$_{1.PS.SG}$-your-car card$_{DIM}$
       d. Kärtchen "Kaufe Ihr Auto"
       card$_{DIM}$ "buy$_{1.PS.SG}$ your car"
       e. Kärtchen mit der Aufschrift "Kaufe Ihr Auto"
       card$_{DIM}$ with the writing "buy$_{1.PS.SG}$ your car"
       f. Kärtchen, auf denen "Kaufe Ihr Auto" (card$_{DIM}$ on which "buy$_{1.PS.SG}$ your car" is written) (Meibauer 2007: 250)

He 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 them 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 sketch an analysis which is based on Jackendoff's framework and Meibauer's observations and assumptions concerning the expressive flavour of PCs. I will show how their morphopragmatic properties can be integrated into conceptual-semantic structure.

4. Phrasal compounds in English and suggestions for a conceptual-semantic analysis

In this section, I am going to present and discuss the data I have collected from the *BNC*. I will provide a qualitative analysis of the PCs from the BNC along the lines of Meibauer's classification discussed in the preceding section. Further, I will sketch an analysis based on the main tenets of the PA model, and more explicitly, on Jackendoff's analysis of NNCs. The morphopragmatic properties discussed in the previous section will be integrated by assuming processes of metonymic coercion.

4.1 *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). Due to technical issues, in this paper I will restrict myself to PCs where the phrasal non-head is marked by quotation marks (for a comprehensive study see Trips in preparation). Among the total of 1397 tokens about half of them (650) are of the type VP + N, i.e. PCs where the phrasal non-head contains a predicate (PC[+pred]). 694 PCs are of the type NP+N, 32 of the type AdvP+N, 15 of the type PP+N, and 6 are of the type AdjP+N. All of these types are PC[–pred] because they do not contain a predicate. Concerning the latter type (PC[–pred]) the following main patterns occur:

(21)   a. a "cost per case" basis (N+prep+N)
       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. Concerning the latter type (PC[+pred]) the following main patterns occur:

(22)   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: all types of verbs with morphological inflection, the elision of verbs, verbs with their arguments and with adjuncts. Further, we find different sentence types, for example, declarative main clauses, questions, and sentences introduced by interjections as in authentic speech produced on the fly. Especially the latter pattern is proof for non-lexicalised phrases as non-heads although in the corpus quite a number of PCs with lexicalised phrases occur as well like *a "have a nice day" culture* (quotation) or *the "snake in the tunnel" scheme* (idiom; for a classification of fixed expressions see Jackendoff 1991). In the following I will not discuss the lexicalised type in further detail since from a theoretical point of view it is the non-lexicalised type which is much more interesting. Thus, I will focus on PCs illustrated by the examples in (22).

4.2 *Suggestions for a conceptual-semantic analysis*

In section 3 Meibauer's conceptual-semantic classification of the heads of PCs was introduced. I applied these to my data from the BNC to put its validity to the test, and 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 (23) examples for each of the semantic concepts of the semantic head for both types of PCs are provided: for the type PC[+pred] (indicated by (i)) and the type PC[–pred] (indicated by (ii)):

(23) 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. (A0T 354)
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. (CGD 645)
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. Overall, the English PCs are very similar to Meibauer's German PCs which is not very surprising since both languages exhibit the same types of non-phrasal compounds with a right-hand head. Concerning the frequency of occurrence of the different conceptual-semantic classes PCs expressing an attitude, an utterance, and a medium conveying utterance are much more frequent than those expressing an individual, a property or thing (see Table 1).

Next, we will take a closer look at the two types of PCs. Concerning PC [+pred], the non-heads of all examples labelled with (i) in (23) are sentences, they contain a proposition which is based on truth values. According to Jackendoff one of the basic functions can fill out F in NNCs (see section 2). In the following, instead of using F I will use the variable R(elation) which is the standard way of notating the relation between the meaning of N_1 and N_2 in compounds. 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

(24)   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 the BNC 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 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 hold for the PC *the "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 for PC [+pred] in (23) and tried to apply Jackendoff's basic functions we would come to the conclusion that none of these really hold for this type of PC. 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 $R(X_1,Y_2)$ which yields the meaning of $[N_1N_2]$. What is crucial is that R is underspecified, i.e. the variability of constituent meaning and a number of possible relations within the compound causes ambiguity (see section 1 and 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 for example "a dog who eats puppies". Although the type PC[+pred] is an instance of compounding, it does not share the property of underspecification 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].

A confirmation of this claim can be seen in the results of Meibauer's experiment discussed in section 3. He took this property of compounds into account and investigated PCs in isolation and in context. He found 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 was said so far, I suggest that the type PC[+pred] is based on the predication relation IS-INSTANCE-OF (Jackendoff 2010a: 13) rather than on $R(X_1,Y_2)$. PCs of the type PC[–pred] (all the cases in (23) 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 in the form 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 *"the Charles and Di" syndrome*. The only thing 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 just as it does in NNCs. In other cases where the phrase has a lexicalised meaning as in *a "chicken and egg" situation* ('unresolvable problem of the first cause'; OED online), the phrase does not have the properties of a transparent syntactic phrase, and if remodelled as an NNC, we would have the same effect as with *the "Charles and Di" syndrome* (what is the meaning of *a chicken situation* or *an egg situation*?). Phrasal non-heads like NPs, APs, PPs and AdvPs determine 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]. So it seems that it is not the phrasal structure of PCs which is critical for an adequate interpretation but their conceptual-semantic properties.

Under these assumptions, I suggest the following classification of PCs: PCs fall into two classes, either they are of the type [+pred] or [–pred]. If they contain a predicate in the phrasal non-head, they are based on the IS-A relation 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. In line with standard assumptions of Cognitive Grammar, I assume that metonymy is a conceptual phenomenon which can be defined along the following lines (Panther and Thornburg 2007: 242):

(25)   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.

Type a) PCs differ from type b) PCs in that the former type refers to the cognitive domain of THINGS[4] 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'. In all other cases of this type the relation between source and target content is indirect and therefore more complex because apart from the relation IS-INSTANCE-OF a further instance of metonymic coercion is involved since otherwise the meaning of the non-head and the head could not link up semantically.

For example, for a PC of type a) like *a "Weather, hot, cricket wonderful" postcard* we assume "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. 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 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).

For illustration purposes, we will take a closer look at the interpretation of another PC [+pred]: *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 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):

(26)   I'll use your bathroom. To powder my nose, as nice girls say.
        (L. P. Davies What did I do Tomorrow? 1972: 72; OED online)

In almost all of the cases discussed so far, metonymic coercions explain the intended interpretation of these type of PCs which includes their processing on the part of the recipients. At this point it must be pointed out that metonymic coercion is not an "anything goes" mechanism. On the contrary, it is 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.[5]

Coming back to the classification proposed for PCs, PC[-pred] is highly underspecified 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 metonymic coercion is evoked to create more distant relations. For example for the PC *a "chicken and egg" situation* a cognitive domain can be assumed where the things 'chicken' and 'egg' are prototypical participants in a cyclic situation which cannot be resolved (which of the two was there before, the chicken or the egg?). 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). A further example of the same type would be *the "Charles and Di" syndrome* discussed above where the concept of INDIVIDUAL shows metonymic coercion 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.

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. We have seen that metonymic coercions play a crucial part in the interpretation of this type of compound. With others, Panther and 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.

Based on the observations made above, we assume that the expressive flavour of PCs results from the strength of the metonymic link between source and target content. More precisely, the more indirect a metonymic link is between the source and target content, the wittier a PC is. Coming back to the famous example of the *ham sandwich* in (13) it seems that it is the unexpectancy 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 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:

(27) 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)

In this case no metonymic coercion occurs because the relation between source and target content is direct. The result is that this PC is less witty. In contrast, the PC
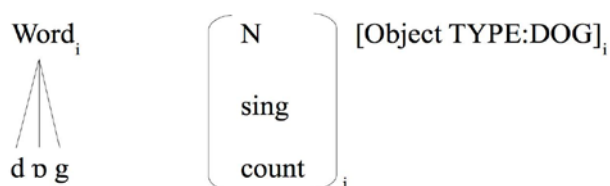
   b. Most eventually got honorary Lifetime Achievement Awards – alias *the "Whoops, sorry, we forgot you" Oscars*, or even "Whoops, sorry, we didn't know you were still around", as happened to Sophia Loren in January, thirty years after she won Best Actress for Two Women. (ABS 2601)

involves metonymic coercion which results in a higher degree of wittiness. These assumptions differ from Meibauer's definition of the expressivity of PCs (section 3). He 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 assume 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 sentence.

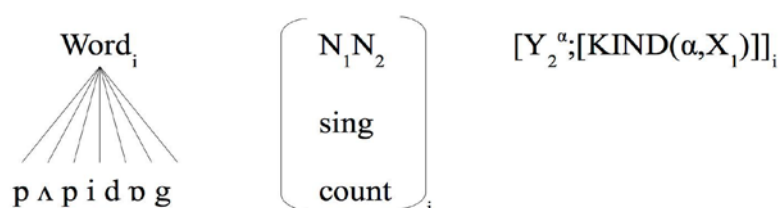## 5. Phrasal compounds and the mental lexicon

In this section, I will discuss how PCs 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 (see section 2). So the lexical entry for a word like *dog* lists 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):

(28)

$$\text{Word}_i \quad \bigwedge \quad \text{d\,ɒ\,g} \qquad \begin{bmatrix} N \\ \text{sing} \\ \text{count} \end{bmatrix}_i \qquad [\text{Object TYPE:DOG}]_i$$

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

(29)

$$\text{Word}_i \quad \bigwedge \quad \text{p\,ʌ\,p\,i\,d\,ɒ\,g} \qquad \begin{bmatrix} N_1 N_2 \\ \text{sing} \\ \text{count} \end{bmatrix}_i \qquad [Y_2{}^{\alpha};[\text{KIND}(\alpha,X_1)]]_i$$
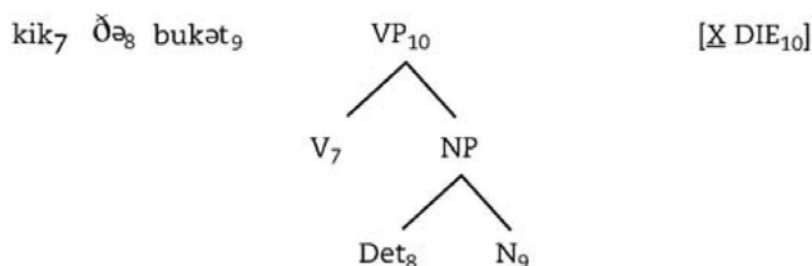
The determining principle here is the one which concatenates two nouns into a bigger noun as well as the pragmatic properties of the meanings of the words taking part in compounding. This implies that syntactic structure is not required (Jackendoff refers to these as "fossil principles" (2002: 249); see also section 1 where the notion of compounding as a protolinguistic "fossil" was mentioned). Concerning PCs we might say that they are stored in the same fashion. Although sentences produced on the fly are likely to be constructed online, they need not be: for example, while reading this paper the reader has been exposed to the PC *this "Steffi is Great" attitude* 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. It is worthwhile to discuss whether PCs are located along this continuum as well; their meaning is specified, and although their phrasal non-head does not seem to be lexicalised the PC as such is processed as a whole word unit. Jackendoff's analysis of idioms might reveal further insights into this issue which is why it will be briefly discussed next.

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 (33), (see Jackendoff 2007: 11; see also Jackendoff 1975):

(30)

$$\text{kik}_7 \quad \eth\text{a}_8 \quad \text{buk}\text{a}\text{t}_9 \qquad \text{VP}_{10} \qquad\qquad\qquad [\underline{X}\ \text{DIE}_{10}]$$

$$\text{V}_7 \qquad \text{NP}$$
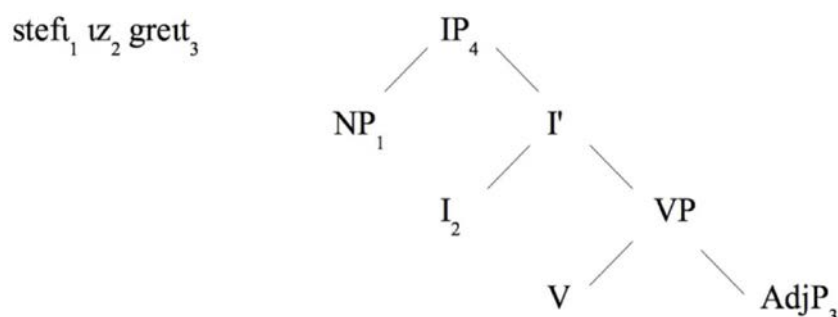
$$\text{Det}_8 \qquad \text{N}_9$$

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. Crucially however, the meaning is not linked to the individual items but to the VP as a whole (subscript 10). For the discussion of PCs even more interesting are the so-called constructional idioms (Jackendoff 2002: 172ff) which include 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 (31):

(31)   a. [VP v NP PRT]: V pro $_e$'s head off; 'V excessively'
       She sings her head off.
       b. [VP v NP pp]: V pro $_e$'s way PP; 'go PP while/by V-ing'
       Bill belched his way out of the restaurant
       c. [VP v np PRT]: V NP [time period] away; 'spend N PV-ing'
       We're twisting the night away.
       d. [VP 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 (upper case notates the idiomatised elements, lower case the freely chosen elements). 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 compared to the PCs we have been investigating so far, I think that the two phenomena are similar in that they are both constrained syntactically and semantically. However, they also differ in the way they are constrained. The lexical entry for the example *this "Steffi is Great" attitude* serves to illustrate this:

(32)

stefi₁ ɪz₂ greɪt₃

$$
\begin{array}{c}
\text{IP}_4 \\
\diagup \quad \diagdown \\
\text{NP}_1 \qquad \text{I}' \\
\diagup \quad \diagdown \\
\text{I}_2 \qquad \text{VP} \\
\diagup \quad \diagdown \\
\text{V} \qquad \text{AdjP}_3
\end{array}
$$

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 (or only partly so). 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 which determines the properties of the lexical item:

(33)

$$
\left[\begin{array}{c} /[x][y]/ \\ +N \end{array} \right] \leftrightarrow\mid \left\{ \begin{array}{c} \left[\begin{array}{c} /x/ \\ +N \end{array} \right] \\ \left[\begin{array}{c} /y/ \\ +N \end{array} \right] \end{array} \right\}
$$

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 based on the IS-A-RELATION 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. I suggest that this applies to all types of PCs discussed in this paper.

The analysis sketched here has the 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 CT] 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".

Finally, I would briefly like to come back to Jackendoff's claim that compounding is a protogrammatical phenomenon which was tackled in the introduction of the paper. 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. Concerning the first property, clearly the complex phrasal non-heads cannot be defined as rudimentary grammatical structure. Especially the non-phrasal heads of PCs containing a predicate are mainly 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 suggested 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.[6] 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] as well as for NNCs which is in line with Meibauer's (2007) findings. Therefore, the PC[+pred] type is best seen as a modern modification of the protogrammatical phenomenon of non-phrasal compounding.

6. Conclusion

In the concluding section I would like to summarise my findings and assumptions. In the paper my aim was to show that the conceptual-semantics of PCs as well as their expressive flavour determines their properties in a critical way. Since so far they have been analysed in a model which is derivational, syntactocentric and based on a strict distinction between the lexicon and grammar it is not surprising that a satisfying analysis has hitherto been lacking. I suggested that a model which assumes independent generative components where semantic, syntactic and phonological structures are built in a parallel fashion and are linked by interface rules, and where no clear lexicon-grammar distinction takes place can well account for the properties of PCs. Furthermore, since no distinction is made between semantics and pragmatics, the expressive flavour of PCs can easily explained by processes of metonymic coercion. Section 2 served to illustrate the differences between these two models: the traditional generative model, and Jackendoff's model of Parallel Architecture which were illustrated by some analyses of PCs put forward so far. In section 3 Meibauer's explanation for the morphopragmatic character of PCs was discussed. He proposed that it is defined in terms of expressivity and wittiness where expressivity results from a conflict between Levinson's (2000) I-principle and Q-principle. 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. Section 4 presented data gained from the BNC. First, Meibauer's conceptual-

semantic classification of the head of German PCs was applied to English PCs, and second, all of the PCs found were classified according to two different types: a type which contains a predicate in the phrasal nonhead (PC [+pred]), and a type which lacks a predicate (PC [–pred]). Concerning a conceptual-semantic analysis of PCs discussed in the remaining part of section 4, for the former type the IS-A relation was suggested whereas for the latter type the basic functions generally attributed to NNCs were assumed. The expressive flavour of PCs which was defined as a conflict between pragmatic principles by Meibauer was explained differently, namely by the interplay between the IS-A relation for the type of PC containing a predicate, and basic functions for the type of PC not containing a predicate, 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 *a "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 restriced by the cognitive domains in which it occurs. Thus, it was shown that Meibauer's assumptions can easily be transferred to the analysis based on Jackendoff's model of PA.

In this paper, I intended to show that it is not the phrasal structure of PCs which is critical for an adequate analysis but their conceptual-semantic properties as well as morphological rules. Since syntax does not play a decisive role and there is no strict lexicon-grammar distinction, constraints like the No Phrase constraint cannot be evoked. I think 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 (building new lexemes) since only then do we get further insights into the nature of morphology, and the architecture of grammar.

Notes

1   In the following I will refer to the 2010 version of this paper which Jackendoff published as an expanded and revised version in his book *Meaning and the Lexicon* ("The Ecology of English Noun-Noun Compounds", chapter 13).

2   It should be noted that AandN do not explicitly discuss PCs with a sentential non-head.

3   Profiling is indicated by the variable α, in the schema it is bound by the superscript on Y2 which results in a well-formed modifier. For details on profiling cf. Jackendoff, 2009.

4   In the following, the definitions of all relevant concepts are based on the classification of WordNet-3.1.

5   In his 2003 paper, Meibauer sketched a similar approach which is based on mental spaces.

6   which also includes inflectional morphology, a property absent in protolanguage, cf. Klein and Perdue, 1997).

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