## Angela Lamberty

## WHY WE DON'T CARDRIVE OR BOOKREAD, BUT SLAVEDRIVE AND LIPREAD

A Cognitive-Linguistic Approach to Verbal Compounds and Pseudo-Compounds in English

Why We Don't Cardrive or Bookread, but Slavedrive and Lipread

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# 1 Introduction: Why is verbal composition not a productive word-formation pattern in the English language?

#### 1.1 Context and motivation

"Compounds are important objects of morphological investigations, because compounds are present in all languages of the world" (Dressler 2006, 23). The combination of at least two free lexical morphemes, as we define compounding here, is a highly productive word-formation pattern also in the English language. In light of this, it is all the more astonishing that verbal compounds seem to be very rare. Lexemes like *to babysit, to spoon-feed* or *to footnote* may superficially look like compounds, however they are back-formations or conversions from underlying noun or adjective compounds. *To babysit,* for instance, is a back-formation from the nominal compound *babysitter*, the adjective *spoon-feed* served as the basis for *to spoon-feed* and *to footnote* was converted from a homonymous compound noun.

This being the case, these lexemes are what has been termed 'verbal pseudo-compounds' (Marchand 1969, 101), namely, lexemes which at first glance look like compounds, but in reality derive from different word-formation patterns. Among linguists there is a broad consensus that, apart from preparticle verbs like *to outrun* or *to overestimate*, genuine "[v]erbal composition does not exist in Present-day English", as Marchand (1969, 100) put it. He even goes so far as to claim that "verbal composition [...] does not seem to have existed in Germanic at all" (Marchand 1969, 100). This statement is highly interesting for the purpose of this study, as it forms the basis for the overriding research question.

#### 1.2 Research questions and hypotheses

There is a range of linguistic literature that challenges Marchand's statement and returns to the question of whether genuine verbal compounds do actually exist in English. Different authors arrive at slightly different conclusions, but eventually all agree on the fact that such lexemes represent an extremely odd and unproductive phenomenon of the English language. Some authors (who do research in this field) attempt to classify the different types of verbal pseudo-compounds, among them, for example, Marchand's pupil Dieter Schrack (1966), who in his doctoral thesis classifies verbal compounds from early written records until about 1900 with a strong focus on the diachronic development of the different types. Another scholar, whom I will not focus on in this study, is See-Young Cho (2002), whose descriptive work on verbal compounds includes aspects like orthography, stress patterns and peculiarities in morphology. He at least partly refuses to accept Marchand's statement of the nonexistence of genuine verbal compounds by giving evidence from the Oxford English Dictionary (OED). A similar procedure can also be found in Erdmann (1999), who in his paper "Compound verbs in English: Are they pseudo?" tries to refute Marchand's statement by providing counterexamples and referring to historical data recorded in the OED. However, he explains all those cases as analogous formations rather than as genuine compositions. Moreover, his findings do not seem to overrule Marchand's statement in general, since they are exclusively based on written data.

I do not wish to go that far and claim that genuine verbal compounds are absolutely impossible, since exceptions to the rule (like nonce-formations and possibly some single unclear cases) can surely be found. This topic has been addressed repeatedly, the common ground being that there is a consensus about the fact that English verbal compounds are extremely rare and do not follow a general, productive word-formation rule. In this book, I therefore do not intend to investigate this topic further, but, instead, to shed light on the question of *why* verbal composition is apparently not a productive word-formation pattern in the English language. Why is it possible to say *I can lipread* (which is a back-formation), but not *I \*bookread*? What INTRODUCTION

is wrong with *to \*cardrive*, when we can use the (back-formed) verb *to slavedrive*? From a primarily cognitive-linguistic perspective, the present book also answers the following sub-questions: What are possible reasons for the prevention of the lexicalization or even the formation of such lexemes? What are the restrictions in the English language which prohibit them? Are there cognitive phenomena which explain why lexemes like *to babysit* cannot be compounded directly, but need an intermediate compound noun or adjective? These highly interesting but still astonishingly basic questions have not been seriously dealt with in the existing literature so far, thus making this topic all the more interesting and exciting.

The very fact that such verbs, as Marchand notes, do not seem to exist in any Germanic language indicates that the reasons may not only lie in the internal make-up of the English language, but strongly points to the possibility that language-independent, e.g. cognitive, factors could be important, too. However, the present study is confined to verbal compounds in the English language, although this topic has also been addressed for other Germanic languages<sup>1</sup>.

<sup>1</sup> Verbal compounds in the German language (e.g. *bausparen, notlanden*) have been thoroughly examined, for instance, in Åsdahl Holmberg (1976) and Westendorf (1985), both of which are descriptive studies with the aim of classifying the existing types. For further reading also consult Eschenlohr (1999), who investigates verbal pseudo-compounds formed by conversion and backformation, Kauffer and Métrich, eds. (2007), containing a collection of papers highlighting a wide variety of aspects concerning verbal word-formation in German, Moser (1979), who deals with problems concerning orthography, Pittner (1998) with particular interest in noun + verb combinations and their dissociation from parallel syntactic structures, and Donalies (1996) on verb + verb combinations. Also of interest for a general reading are Stopp (1957), Wunderlich (1987) and Barz (1992).

There is in addition a range of literature on verbal compounds in the Swedish language, a good survey of which can be found in Åsdahl Holmberg (1976, 4–7). She (1976, 6) criticizes the fact that, although verbal pseudo-compounds in Swedish are commonly used and outnumber English ones, they have been ignored by Marchand and Schrack.

# 1.3 Delimiting the field: disambiguation of terminology

By 'verbal compounds' I do not mean compounds with a deverbal second constituent like *watchmaker* or *housekeeping*. Following the general convention, these will be called 'synthetic compounds' (see e.g. Lieber 1983, 259). Rather, the type of words I am interested in are complex lexemes like *to housekeep, to babysit, to dry-clean* or *to sleepwalk*, i.e. compound-like formations which function as verbs. Many of these lexemes have a verbal second element, but this is not a necessary precondition since there are also cases like *to bootleg* and *to cold shoulder*, which do not contain a verbal constituent at all.

Preparticle verbs like the above-mentioned *to outrun* or *to overestimate* will be excluded from my analysis<sup>2</sup>, since the first constituents of such lexemes are semantically clearly distinct from the independent adverbs to which they are related. Therefore, they are generally regarded as prefixes rather than free morphemes<sup>3</sup>.

The terminology employed in linguistic literature can at times be confusing, and sometimes we are confronted with notational terms that lack a consistent usage among different authors. Therefore, a sufficiently detailed definition of the different terms as they will be used in this study is crucial. A 'compound' in general will simply be defined as a combination of at least two free lexical morphemes. A 'verbal compound' is thus one which functions as a verb. Marchand's term 'verbal pseudo-compound' will be taken over, denoting a verb that has in actuality been derived from a composite nonverbal basis. Thus, a distinction has to be made between 'genuine verbal compounds' (henceforth GVC) and 'verbal pseudo-compounds' (VPC<sup>4</sup>).

GVCs—if they existed—would in actuality be compounded. An invented hypothetical verb *to \*spongeclean* meaning 'to clean with a sponge', for instance, would be genuinely compounded from a noun and a verb, since a related nonverbal base lexeme does not exist.

<sup>2</sup> The same applies to verb + particle constructions like *to eat up* or *to leak out*. For more detailed reading see Lipka (1972).

<sup>3</sup> Compare Marchand (1969, 96-100).

<sup>4</sup> To avoid confusion, please note that the abbreviation VPC is sometimes also used for 'verb + particle constructions', e.g. in Lipka (1972).

VPCs like *to babysit*, on the other hand, are derivations surfacing as compounds, i.e. back-formations, zero-derivations or analogous formations.

#### 1.4 Structure and organization of chapters

The book will be divided roughly into a theoretical introductory part, providing an overview of relevant literature on the topic, and an empirical study consisting of two parts, a corpus and dictionary analysis on the one hand, and a subsequent questionnaire study on the other.

The chapter following the introduction will provide a state of the art review of existing research on verbal compounds and pseudocompounds. After beginning with a discussion of Marchand's structural approach, which is the starting point for the aim pursued in this book, the following subchapters will concentrate on several other important frameworks in the fields of Functional and Generative Grammar. The diverse approaches to verbal compounding include incorporation theories like those of Baker (1988) and Mithun (1984), Roeper and Siegel's (1978) so-called 'Lexical Transformation Theory', the approaches suggested by Lieber (1983) and Selkirk (1982), as well as a comparatively new framework, namely, Ackema and Neeleman's (2004) 'Morphosyntactic Competition Theory'.

Built on this theoretical foundation, chapter 3 will add a cognitive-linguistic perspective to the analysis of verbal compounds, which constitutes a field of linguistics that has not yet seriously dealt with this kind of lexemes. This chapter will therefore introduce the most important ideas, which will be central for a cognitive-linguistic approach. Based on Schmid (2005; 2011b), the different stages of compounds on their way to establishment will be reviewed, from a structural, socio-pragmatic and cognitive perspective, with a focus however on the last. Moreover, this chapter will also address several issues that are basic for a study of complex lexemes, e.g. the processes involved in conceptual combination and decomposition, as well as a fundamental principle of cognition in general, namely, the Figure/Ground distinction and related aspects.

After having provided the theoretical groundwork, the remainder of this book will deal with an empirical analysis of verbal compounds. In order to embed the empirical research in a systematic framework, chapter 4 presents the analytical tools necessary for a reasonable approach. Lipka's 'multi-level approach to word-formation' will provide criteria according to which the lexemes in question will be classified and analysed both in the corpus analysis and in the questionnaire study. This set of categories includes, among others, morphological, syntactic and semantic aspects, and provides some theoretical background information where needed for an analysis of verbal compounds.

Chapters 5 and 6 constitute the heart of this study, i.e. the empirical analyses. In order to approach the overriding research question, empirical methods of two kinds will be employed. On the one hand, a dictionary and corpus analysis will be carried out, in which existing pseudo-compound verbs will be analysed with regard to their structure (chapter 5). On the other hand, a questionnaire study will test fictitious lexemes on acceptability and comprehension (chapter 6). The corpus and dictionary analysis will be based on the Longman Dictionary of Contemporary English (LDOCE) and Cho's comprehensive study on English verbal compounds entitled Synchrone und diachrone Untersuchungen zu den zusammengesetzten Verben im Englischen (2002). His work includes an extensive appendix of existing pseudo-compounds, which constitutes a rich source for my analysis. A total of about 600 relevant pseudo-compounds will be examined with regard to their internal structure. Pretending that they are genuine compositions, these formations will be characterized with regard to different criteria based on Lipka's multi-level approach to word-formation, including aspects such as morphological shape and structure, semantic relations, and figurativity in order to demonstrate which patterns underlie established lexemes. These patterns are understood as necessary criteria, which might facilitate the formation of verbal compounds. All these criteria narrow down the scope of potential lexemes, which helps to finally provide an answer to the initial research question.

The findings of the corpus analysis will serve as a basis for the second part of the empirical study, i.e. a questionnaire, discussed in chapter 6. This study will test fictitious verbal compounds and serves to confirm the hypotheses concerning their nature, which have been concluded from the corpus analysis. These hypothetical lexemes are partly constructed as genuine compounds, meaning that no substantival or adjectival compound exists from which they could possibly be derived, and at the same time display the same internal structure that has been observed in the corpus verbs. In addition to these potential verbal compounds, potential pseudo-compounds will be invented, i.e. verbs which are back-formed or converted from already existing substantival or adjectival compounds, and which will then be tested in the same way. The underlying patterns of fictitious test lexemes judged comprehensible and acceptable in the questionnaire study can then be compared to those of actually existing verbal pseudo-compounds from the corpus. If a preponderance of the same patterns can be observed in both cases, this might point to the fact that the causes prohibiting genuine verbal compounds are not inherent in their components but may lie elsewhere.

In the subsequent chapter, the results from the corpus analysis and the questionnaire study will be combined and a concluding answer to the research question will be provided.

### 2 Verbal compounds— A state of the art review

The broad area of compounds and compositional word-formation patterns has always been a focus of linguistic interest. Noun or adjective compounds, which form the majority in the English language, have been treated in innumerable publications. The comparatively small group of verbal (pseudo-)compounds only represents, however, a marginal field of research for most authors. Usually, they are only touched upon for the sake of completeness by briefly stating their nonexistence, whereas systematic and detailed treatises that discuss this phenomenon at some length are hard to find. Grammars of English are a first point of reference, since a comprehensive description necessarily deals with this type of word-formation in some way. Indeed, some comments on verbal composition can be found in early works like those of Eduard Mätzner (1860), Henry Sweet (1892), or Herbert Koziol (1937), to name only a few<sup>5</sup>.

Mätzner (1860, 482), for instance, defines verbs that appear to be compounded of a noun and a verb as derived from already compounded nouns. Genuine verbal compounds, therefore, do not exist:

Im Allgemeinen ist den älteren germanischen Sprachen die Bildung von Zeitwörtern aus einem Nennworte überhaupt und einem Zeitworte fremd und die meisten Formen, welche so erscheinen könnten, sind Parasyntheta, also Verbalbildungen aus einem bereits zusammengesetzten Nennworte.

<sup>5</sup> For a concise overview of traditional literature on verbal pseudo-compounds in English and also German linguistics, see Schrack (1966, 4–13) and Shaw (1979, 28–33). A very detailed survey on traditional German grammarians as well as more modern cross-linguistic discussions on this topic can also be found in Westendorf (1985, chapters 3 and 4).

The same holds for adjective plus verb combinations (Mätzner 1860, 482–483). Mätzner does not enlarge upon verb plus verb combinations, simply stating that such formations are impossible: "Kein Zeitwort wird mit einem Zeitworte im Angelsächsischen zusammengesetzt" (Mätzner 1860, 481).

Sweet, in his *New English Grammar* (1892, 446), shares this opinion and holds that "[v]erbs are very rarely compounded directly with nouns or adjectives", but rather "formed from compound nouns or adjectives". He finds that Modern English displays a slightly higher tendency to form compound verbs and gives examples like *to browbeat* or *to whitewash*, but these are still comparatively difficult to locate, as he (1892, 448) argues.

Koziol (1937, 72–74), in his chapter on compound verbs, points to the fact that the number of verbal compounds in general is much smaller than that of nominal or adjectival ones. This most probably is one of the reasons why they have so long been neglected in linguistic research. He also regards noun + verb combinations like *to housekeep* and *to bloodsuck* or adjective + verb combinations like *to merrymake* or *to rough-ride* as back-formations. Additionally, he comments on the possibility of using compound nouns and adjectives verbally by means of conversion, like *to hamstring, to wetnurse* or *to cold shoulder*.

A further important author to be mentioned in this context is Otto Jespersen, who, in his Modern English Grammar on Historical Principles (1942) and some other publications (1935, 1935/36), quite thoroughly examines the different types of compound verbs. He divides them into two groups, namely 'Verbs from Substantives' on the one hand and 'Substantive + Verb' on the other. The first group contains conversions, i.e. "verbs and nouns (sb [substantive] or adj[ective]) of the same 'root' [...]" with "perfect formal identity of the two parts of speech" (Jespersen 1942, 86-87). The second group describes verbs formed by means of back-formation from compound nouns or participles like housekeep or henpeck. As one of the first instances of such a back-formation he mentions to backbite, which arose around 1300 as a derivation from *backbiter/backbiting* (Jespersen 1942, 166-167). According to Schrack (1966, 8), Jespersen was one of the first authors to notice that such verbs face some problems, since they conflict with the syntax of English: "Compound vbs [verbs] of the type *housekeep* are not usual in the Gothonic languages, and are felt to some extent as contrary to idiom" (Jespersen 1942, 166). He further states that where we find a compound with a verbal second element and an objective or adverbial first one, this cannot have been formed originally, but only in a circuitous way through an action or agent noun by means of back-formation (Jespersen 1935/36, 117; also 1935, 159–160 and 1942, 166). Schrack (1966, 7) notes that these thoughts bear some similarity to those of Marchand (1969), who, as the founding father of the term 'verbal pseudo-compound' and related discussions, is almost inevitably associated with this phenomenon. Linguistic papers on verbal compounds, few as they may be, are mostly based on or at least highly influenced by Marchand's findings.

In the following I would therefore like to give an overview of Marchand's seminal approach to verbal compounds and, in the subsequent chapters, discuss some of the most popular theories emerging within the frameworks of Functional and Generative Grammar.

# 2.1 Marchand's structural approach to verbal compounds

Hans Marchand is often seen as the pioneer of modern word-formation theory and his *Categories and Types of Present-Day English Word-Formation* (1960b, 1969) follow a 'Synchronic-Diachronic Approach', as he calls it, which heralded a new era of "synchronic descriptive treatment", that went beyond "traditional diachronic-comparative" methods of analysis (Pennanen 1971, 9).

#### 2.1.1 Compounds and pseudo-compounds

Within Marchand's theory, compounding in general is defined as the "coining of new words [...] by way of combining linguistic elements on the basis of a determinant/determinatum relationship called syntagma" (Marchand 1969, 11). This distinction between the determi-

nant and the determinatum of a compound is essential to Marchand's approach.

Compounds in English, as Marchand (1960b, 11) further argues, do not all have this determinant/determinatum relationship, as there are also exceptions to the rule. Many combinations, like *paleface* or *pickpocket*, apparently fail to meet this requirement. Since a *paleface* is not 'a pale face' but 'a person described as having a pale face', the determinatum is formally missing, though implicitly understood. Such cases are treated as "compounds with a zero determinatum" by Marchand (1960b, 11), who calls them "Pseudo-compounds", namely, "combinations with a compound determinant and a zero determinatum" (1969, 13).

The same distinction is captured by the terms 'endocentric' versus 'exocentric' (or bahuvrihi<sup>6</sup>) compounds, which describe both a semantic and a structural difference. Semantically, endocentric compounds maintain the meaning of the head word whereas exocentric ones do not realize their referent within the compound. Structurally, the head of an endocentric compound belongs to the same word-class as the compound as a whole, whereas this is not necessarily the case with exocentric compounds (Sears 1972, 39).

<sup>6</sup> Sometimes the Sanskrit term *bahuvribi*, going back to Pānini, is also used to denote only a special type of exocentric compound (also called 'possessive compound' from the Sanskrit name meaning '(having) much rice'), cf. Bauer (2010, 169) and Dressler (2006, 33). Therefore, the term exocentric will be preferred to cover the whole group.

Determinant	Determinatum	Compound	Туре
apple	tree	<i>apple tree</i> ('tree bearing apples')	endocentric
paleface	Ø	<i>paleface</i> ('person with a pale face')	exocentric

Table 2.1: Endocentric and exocentric compounds

As regards the different word classes, Marchand (1969, 30) remarks that compounding can be found in all of them. Compound substantives are the most frequent ones, followed by adjectives. Compound verbs constitute the smallest group, which does not make them less interesting, however. Since compounds, as Marchand (1969, 96) understands them, are explainable on the basis of a determinant/determinatum relationship, the only kind of verbal compounds that meet this requirement are preparticle verbs like to overdo or to underestimate, with one of the locative particles out, over or under as first constituents. Although the first constituents are independent lexemes, they semantically deviate from their meanings as adverbs. Whereas full words in general keep their semantic features when entering a compound (e.g. head does not change semantically in the compound headache), a particle like over in overdo has a different meaning than the same word over as an adverb. Therefore, they are rather close to prefixes, the stress pattern of which they also share (Marchand 1969, 100).

Except for preparticle verbs like those just mentioned, Marchand (1969, 100) states that "verbal composition did not occur in Old English and does not seem to have existed in Germanic at all".<sup>7</sup> He even holds that it "does not exist in Present-day English either" (Marchand 1969, 100). This strong claim at first sight seems to be

<sup>7</sup> Cf. also Sauer (1985) on compound verbs and preparticle verbs with a special focus on Old English and Sauer (1988) on compounding in general in the Early Middle English period.

contradicted by lexemes like *to spotlight, to blacklist* or *to stagemanage*. However, in his further elaboration, Marchand shows that existing lexemes of this type are not genuinely compounded, but derive from different word-formation patterns. Other than preparticle verbs, which can be given a determinant/determinatum structure, lexemes of the above kind have a zero determinatum, while the lexeme as a whole serves as the basis for deriving the meaning. *To stagemanage*, if we follow Marchand, means 'to act like a stagemanager' and is therefore derived from the underlying nominal compound. This being the case, he calls such lexemes 'verbal pseudo-compounds' or 'pseudocompound verbs', which, depending on their underlying bases, can be divided into the two groups discussed below (1969, 100–101).

#### 2.1.2 Two groups of verbal pseudo-compounds

The process of derivation is essential for Marchand's framework and in general is defined as the "transposition of a word to the role of determinant in a syntagma where the determinatum is a dependent morpheme" (Marchand 1969, 13), with 'transposition' either referring to a change of word class (e.g. government  $\rightarrow$  governmental) or—less interesting for the purpose of the present book—to a change of semantic class, as in professor  $\rightarrow$  professorship (Marchand 1969, 12–13).

There are two different kinds of verbal pseudo-compounds in English, depending on the derivation pattern underlying their formation. Marchand (1969, 101) therefore postulates two groups, the first one comprising verbs "derived from a nominal compound (which is almost always a substantive)". Two major types to be distinguished in this first group are a) substantive + substantive combinations like (*to*) *spotlight*, and b) adjective + substantive combinations like (*to*) *blacklist*, which can also occur as a syntactic group like (*to*) *cold shoulder*.

The second group contains verbs "derived from a synthetic compound" (Marchand 1969, 101). The underlying compound can be of three kinds: an agent noun like *stagemanager*, an action noun like *playacting*, or a participial adjective, like *spoon-fed*. The former process is what is often called conversion or zeroderivation, resulting in verbs which are formally identical with, but functionally distinct from the nominal compound from which they have been derived. The latter is what we know as back-formation. Morphologically relevant, Marchand (1969, 101) argues, is the fact that the second element of a back-formation is verbal. But basically, both groups describe compound verbs that have been derived from a composite basis. Therefore, it is of little relevance if we are not able to specify the exact basis, as is the case with *to firehunt*, which may result from either the action noun *firehunting* or the compound noun *firehunt*.

Nevertheless, the following two chapters are meant to give more detailed—though by no means exhaustive—information on these phenomena in order to approach the type of lexeme dealt with in this book.

#### 2.1.2.1 Verbal pseudo-compounds formed by zeroderivation

Marchand (1969, 359) defines zero-derivation or derivation by a zeromorpheme, in his terms, as "the use of a word as a determinant in a syntagma whose determinatum is not expressed in phonic form but understood to be present in context, thanks to an association with other syntagmas where the element of content has its counterpart on the plane of phonic expression". Whereas in the case of normal (i.e. suffixal) derivations the addition of a suffix to the lexeme indicates the change of function and content, there is no overt marking in zero-derivatives, although content-wise they are parallel (Marchand 1969, 360).

The term 'conversion' is also frequently used in the literature to denote basically the same concept. The first scholar to address this question in some detail was Sweet (1892), to whom the term can probably also be attributed (Bauer and Valera 2005, 7)<sup>8</sup>. When the verb *walk*, for instance, is changed "into another part of speech with-

<sup>8</sup> Further early discussions on conversion can be found in Biese (1941) and Koziol (1937) in Grzega (2004, 117).

out any modification or addition, except, of course, the necessary change of inflection, etc." (Sweet 1892, 38), as in *he took a walk*, it can be called a converted noun. *Walk* in this latter function takes over all formal characteristics of the word class of nouns in general. Therefore, the essential criterion of conversion, according to Sweet (1892, 38–39), is a change of word class. In this context, Sweet (1892, 39) also talks of partial conversion, in which the converted lexeme has the formal characteristics of both word classes. In his example *the good are happy*, the converted lexeme *good* is, as the subject of the sentence, proceeded by the definite article *the*, and thus behaves like a noun. At the same time, lacking the plural inflection marker -*s*, it resembles an adjective.

Although more than a century has passed since Sweet introduced the notion of conversion, its definition is still not absolutely clear (Manova and Dressler 2005, 67). This is also reflected in the terminological variety. Some authors use the term 'conversion', others prefer the term 'zero-derivation'. We also find notions like 'functional change' (Marchand 1969, 360) or 'relisting' (Lieber 1992b), which add to the range of terms all denoting the same phenomenon, though from slightly different angles. This 'phenomenon', as Bauer (1983, 32) remarks, cannot be easily described, since some define it as a kind of derivation, whereas others understand it as a separate wordformation pattern on the same level as compounding and derivation.

The two most popular terms, conversion and zero-derivation, are often used synonymously (Bauer 1983, 32), but many authors also strictly differentiate here. Conversion, then, would be defined as "the use of a form which is regarded as being basically of one form class as though it were a member of a different form class, without any concomitant change of form" (Bauer 1983, 227). Many scholars, e.g. Jespersen (1942, 84–86) or Marchand (1969), however, prefer the term 'zero-derivation', which is based upon the idea of a formally unmarked zero-morpheme or zero-suffix added to the base word. This notion of a zero-morpheme highlights the parallel with affixation, where derived lexemes are overtly marked both on the formal (addition of a suffix) and the semantic (change of content) side (Marchand 1969, 360). Therefore, strictly speaking, zero-derivation does not describe the process of simply using one lexeme in another word class, but presents it as a derivational process parallel to a normal suffixation process, the only difference being that the head constituent is phonologically zero (Olsen 1990, 191).

The problem of directionality arises with both terms, since how can we decide which one is the conversion base and which the newly converted lexeme? According to Bauer and Valera (2005, 11) there are two possible approaches: "One is based on historical evidence and uses etymological information to tell base from derived (as in Biese 1941). The other rejects diachronic data as relevant for analysis of present-day material and rests primarily on the semantic relation between the terms linked by conversion (Marchand 1963[b], 1964)"<sup>9</sup>. Unfortunately, the results of these two approaches often conflict, which makes the problem of directionality basically an unresolved one (Bauer and Valera 2005, 11).

A different perspective on conversion is offered in Lieber (1992b), who advocates a generative approach that contrasts with Marchand's framework. Besides the zero affixation analysis, which seems appropriate to her for cases where the zero affix shows the same characteristics as overt, i.e. formally existing, affixes, she postulates a completely new approach, which can also deal with cases that do not exhibit regular morphosyntactic characteristics. The problem she sees is that "the outcomes of conversion in [...] English do not show the sort of uniformity predicted by the zero affixation analysis" (Lieber 1992b, 160), meaning that they display some randomness with regard to gender, diacritic features (membership in a certain conjugation or declension class), etc. (Lieber 1992b, 159–160), and are thus hard to determine in a uniform way. Therefore, she (1992b, 159) explains conversion as a relisting process based on the following assumptions:

- i. The lexicon allows for the addition of new entries.
- ii. Conversion occurs when an item already listed in the lexicon is reentered as an item of a different category.

Conversion, then, is "a redundancy relation in the permanent lexicon" (Lieber 1990, 187). Accordingly, two lexemes *paint* (noun) and *paint* 

<sup>9</sup> As it is of minor interest for the present study, I will not go into detail here. For further reading on how to determine the derivational relationship and the necessary criteria, see Marchand (1963a; 1964).

(verb) are stored as two separate lexical entries in the lexicon (Lieber 1990, 187). Although a directional analysis might be possible, Lieber (1990, 195) argues against a "Directional Rule of Conversion", stating that in her approach "neither member of a conversion pair is derived from the other; both members are basic and have entries in the permanent lexicon" (Lieber 1990, 200). This so-called 'relisting approach' is not a productive word-formation process resulting in regular lexemes, but a creative one (Eschenlohr 1999, 68) in which conversion is regarded as a process outside morphology or grammar, and belonging rather to language use (Don 2005, 2).<sup>10</sup>

Marchand (1969, 360), to come back to our starting point, is aware of this terminological variety. He does not object to terms like conversion or functional change, but it should be kept in mind, as he notes, that they refer to syntactic, i.e. grammatical patterns only and do not consider zero-derivation within the domain of word-formation. As it is not central for the present book, I will not elaborate on these terminological differences any further<sup>11</sup>. Since Marchand's approach represents the starting point of my research question, the term zero-derivation will be used from now on to refer neutrally to the phenomenon described in this chapter.

Regardless of what its name may be, zero-derivation is prevalent in the English language and already began to develop as a wordformation pattern early in the 13<sup>th</sup> century (Biese cited in Marchand 1969, 363). Prenner (1938, 194) already pointed to the tendency to use nouns as verbs and to "the remarkable extent to which this type of change is being practiced". As an example, he mentions the noun *service*, which is now readily used as a verb *to service*. Even rather odd examples of such verbs in phrases like *press-agenting* or *high-pressuring* are possible, he (1938, 195) states. Zero-derivation indeed is a productive way of forming new lexemes and obviously a relatively free process that any lexeme can undergo (Bauer 1983, 226). What is

<sup>10</sup> This approach is strongly criticized in Don (2005), in which the author lists several grammatical constraints on conversion and argues for an analysis of conversion as a word-formation process. For a detailed investigation of constraints on conversion see also Neef (2005).

<sup>11</sup> The question of conversion versus zero-derivation is also dealt with in Dokulil (1968).

interesting for the purpose of this book are formations like *cold shoulder, honeymoon, snowball,* or *wisecrack* (Adams 1973, 108). Neef (2005) investigates possible constraints on zero-derivation in the German language and finds that transparent compound bases do not seem to be suitable for the derivation of a verb. Only lexicalized compounds seem to lend themselves to zero-derivation. However, as he further argues, this is apparently not a characteristic of zero-derivation itself, but an inherent property of verbs in general (Neef 2005, 121–122), and this will become evident in the course of this book. Moreover, Bladin (1911, 35) with respect to compound verbs in particular remarks that they may be particularly prone to being formed by means of zero-derivation due to a deverbal second element in the base lexeme, e.g. *to sidestep* or *to earmark*.

#### 2.1.2.2 Verbal pseudo-compounds formed by backformation

The second possibility for the formation of a verbal pseudocompound, according to Marchand (1969), is by means of backformation. Pennanen, who thoroughly investigates this matter in several publications (e.g. 1966, 1975), defines it as follows:

Back-formation or retrograde derivation is by definition a kind of inverted or reverse derivation. Normally, derivation means the formation of new words from existing ones by means of affixes (prefixes, infixes, or suffixes). Back-formation works in the opposite direction, i.e. from what is, or looks like, or is taken for a derived form, backwards to the "root", which does not really exist. (Pennanen 1966, 9)

Jespersen (1935, 158) simply describes it as the "formation of new words by subtracting something from old ones". This 'something' is indeed not necessarily a proper derivational or inflectional suffix, but often only mistaken for being one (Jespersen 1935, 158–159). Thus, *to beg* is generally regarded as a back-formation from the noun *beggar*, which however does not really carry an agentive affix but presumably derives from *beghard*, a medieval brotherhood (Adams 1973, 105).

The term 'back-formation', according to Jespersen (1935/36, 117), can be traced to Dr. Murray, later, Sir James Murray. Marchand (1969, 391) also offers the term 'backderivation' to neatly integrate this word-formation pattern into his framework. He strictly distinguishes between a synchronic and a diachronic analysis and exemplifies this with the verb *to peddle*, which historically speaking has been backderived from the noun *peddler*. The latter was first recorded according to Marchand's documentation—in 1377, the former not until 1532. If we analyse this example from a synchronic perspective, leaving aside historical evidence, we get a rather different picture. Marchand (1969, 391) argues that, since language users do not have a "historical memory", which stores information about "the extralinguistic factor of time", from a purely synchronic point of view we judge on the basis of semantic content only. *Peddler*, then, would be analysed as 'one who peddles' and thus is derived from the verb.

It becomes evident that diachronic and synchronic analyses do not necessarily yield the same result; however it is the latter criterion of semantic content that Marchand considers decisive (Marchand 1969, 391; also cf. Marchand 1963b). In general, this means that "a word must be regarded as derived if it is naturally analysable as a syntagma through the content features of the other pair word" (Marchand 1963b, 173). If this rule is applied to verbal pseudo-compounds, a verb to typewrite cannot mean 'to write in type'. In order to arrive at the correct meaning, we must recur to the noun *typewriter* and paraphrase it as 'use a typewriter'. Similarly to babysit would be analysed as 'act as a babysitter' rather than 'sit beside a baby'12. Compound verbs therefore are characterized as derived from compound nouns (or adjectives); consequently, at the very least for a synchronic analysis, they are to be seen as pseudo-compounds (Marchand 1969, 393-394), which is why these points should be kept in mind as central for the upcoming analyses in the present study.

In fact, according to Pennanen (1975, 217) the majority of backformations are verbs, which constitute more than 87% of the existing forms in English. In general, the reason may simply be that verbs in particular lend themselves to the process of back-formation since they naturally occur with many different kinds of derivatives, e.g.

<sup>12</sup> Note that it will be argued in the course of this study that some verbal pseudocompounds can indeed be given such a reading, implying a determinant/determinatum structure, although historical data of course support Marchand's analysis (see chapter 4.3).

agent or action nouns, participles, etc., which distinguishes them from representatives of other word classes (Pennanen 1975, 217). According to Pennanen (1966, 91), we therefore almost automatically expect to find a "family of derivatives" in relation to a verb. He makes another highly interesting suggestion that this also holds the other way round, namely, that "when we come across one or more nominal members of such a family the existence of the corresponding parent verb is taken almost for granted" (Pennanen 1966, 91). In this context, I would also like to draw attention to Stopp's (1957, 358) statement: "[b]ack-formation, from a variety of nouns in which the verbal force is already strong, is therefore a common process by which new verbal compounds come into existence or obtain currency". Here he only mentions in passing a highly interesting point, namely the 'verbal force' inherent to certain nouns, which might facilitate the back-formation of a verbal lexeme.

Pennanen (1966, 44–45) postulates six different types of back-formation, the first three of which describe the different verb types and thus are of interest here:

Type I	A verb is back-formed from what is believed to be
	or really is an agent noun (nomen agentis) or an
	instrument noun.
Type II	A verb is back-formed from a real or supposed
	action noun (nomen actionis), usually denoting the
	abstract for the verb.
Type III	A verb is back-formed from an adjectival word
	which is taken to be a derivative from the verb, e.g.
	present or past participle.

These types correspond to those put forward by Marchand, as mentioned in 2.1.2. In many cases it remains unclear what the exact basis for the back-formed verb is. For *to spoon-feed* the most natural analysis seems to regard it as back-derived from the adjective *spoon-fed*, though the OED also records the action noun *spoon-feeding*. A more difficult task is it to decide whether *to sleepwalk* was derived from the agent noun *sleepwalker* or rather from the action noun *sleepwalking*. In cases like these, where several nonverbal bases exist, it is sometimes difficult to decide (Adams 1973, 106–107). Back-formation as a proper word-formation pattern can already be found around 1500, but it is only in the 19<sup>th</sup> century that it became really productive (Pennanen 1966, 87). Gerbert (1967, 805) further explains that the majority did not appear until the Second World War, when slang and colloquial language fostered new formations. This sudden multitude even led some authors to assume a gradual change in language structure. Kirchner (1959) spoke in this context of a 'Neue Synthese', a new synthesis, which he assumed was replacing the analytical structure of the English language. Although this radical statement has been subject to severe criticism (e.g. Schrack 1966, 10), it obviously shows that this increase is being perceived.

After having discussed genuine compounding, pseudo-compounds and different kinds of derivation, the impression seems to be that these word-formation processes are sometimes not easy to keep apart, and different authors analysing one and the same lexeme type seem to vary in their opinions about the underlying pattern. Indeed, as Sauer (1988, 190) remarks, it is not always easy to distinguish between compounds and derivations, because with some word-formation patterns they seem to correlate with each other, depending on the analytical point of view. The phenomenon of so-called synthetic compounding, which was mentioned very briefly in 2.1.2, is often associated with the underlying bases of back-derived verbs like to stagemanage or to babysit and which will be of some importance for the discussions below. In Marchand's (1969, 15-16) framework, synthetic compounds like watchmaker or heartbreaking are defined as "combinations whose second elements are deverbal derivatives from verbs which form a direct syntagma with the determinant" (Marchand 1969, 15). He says that formally speaking they fulfil the requirements of compounds since they can be analysed as noun + noun/adjective combinations. But since the second element of such synthetic compounds is usually not used in isolation, he regards them as "derivations from a verbal nexus" (Marchand 1969, 15). Bauer and Renouf (2001, 117) quite fittingly state that the area of English synthetic compounds is a "descriptive and terminological nightmare". Therefore I will restrict myself to two remarks, which will suffice for

further discussion on this topic<sup>13</sup>. First of all, synthetic compounds are usually characterized by a deverbal second element and a nominal first one. The second constituent most often consists of a verb plus one of the suffixes *-er, -ing* or *-ed*, but some authors also allow for others, e.g. *consumer protection* or *grain storage* (Bauer and Renouf 2001, 117–118; also Lieber 1992a, 82). As regards the first constituent, it often denotes an argument of the verb, e.g. the direct object as in *bus-driver* (Bauer 2010, 170), though not always.

The second issue I would like to mention here becomes evident if we do not regard synthetic compounds like hornblower or watchmaker as made up of a nominal and a deverbal element, but first of all as a combination of two free morphemes and a suffix. Assuming that English verbal compounds are binary branching, as suggested by Aronoff (1976, 89; "one affix, one rule"), our example can be analysed in two ways: either as a compounding of horn + blower or as a derivation of *hornblow* + er. The problem that arises here is generally known as the so-called 'bracketing paradox': The first analysis implies the existence of the deverbal noun, here *blower*. This can in some cases be difficult. A maker (in watchmaker), for example, is not generally used in isolation as an independent noun. The second analysis requires a verb to \*hornblow or to \*watchmake, which is even more problematic since genuine verbal compounds are hard to find, as already mentioned. A different interpretation is possible if a sentence 'someone blows a horn' or 'someone makes watches' is taken to be the basis, which makes the complex lexeme a derivation from the syntactic group as a whole (Sauer 1988, 190). This bracketing paradox will be essential when it comes to the distinction of different subtheories in the field of Generative Grammar (chapter 2.3).

To summarize, the last two chapters have discussed two methods underlying pseudo-compound verbs as put forward by Marchand, namely, zero-derivation on the one hand and back-formation on the other. In his framework, both are regarded as special derivative wordformation processes. The former is characterized by the addition of a hypothetical zero-suffix, the latter—as some kind of recursive derivation—by the subtraction of an element which either actually is, or is

<sup>13</sup> For further reading refer to Melloni and Bisetto (2010).

only mistaken to be, a suffix. Dirven and Verspoor (1998, 66–67), who also accept the derivational aspect of zero-derivation, point out that we "usually, though not always, find a specialization process" (Dirven and Verspoor 1998, 67) involved. Whereas a *carpool* denotes 'a group of people who agree to drive in the group to work or school', *to carpool* as a verb means the joint driving there. In contrast, backformations are usually characterized by extension of meaning. Dirven and Verspoor (1998, 67) argue that whereas the noun *stagemanager* denotes a person 'in charge of a theatre stage during a performance', the verb *to stagemanage* has a more general reading, namely 'to organize any public event, such as a press-conference'.

The following diagram summarizes these findings and gives an overview of the methods by which verbal pseudo-compounds can be formed in Marchand's theory:

Zero-derivation	Back-formation
Basis: N+N or A+N combination	Basis: synthetic compound, participial adjective
spotlight $+ \oslash  ightarrow$ to spotlight	stagemanagerer → to stagemanage

Table 2.2: Derivative word-formation processes

From a sociopragmatic perspective, such back-derived and zeroderived compound verbs are rather striking since they seem to be set apart from normal language usage. This may be one reason why they can often be found in advertising language or newspaper headlines. They function as eye-catchers because they attract attention, appear novel and sometimes also provocative. Moreover they contain a lot of information and at the same time are short and concise. Therefore they are also readily used in technical jargons, where verbs like *to stripmine* or *to steamclean* in general denote highly specialized processes (Gerbert 1967, 805–806)<sup>14</sup>. In the context of such unemotional tech-

<sup>14</sup> For further reading also refer to Reinhardt (1966).

nical jargons with the primary purpose being the presentation of information, these advantages seem to outweigh possible hindrances in using a rather unusual formation (Gerbert 1967, 803). Brevity and conciseness are particularly relevant, as Šimečková (1994, 14) notes, for directives, working instructions, lists of parts, etc. where they simplify matters and save time. However, the more specialized a term, the more restricted is the speech community. In normal language usage speakers are therefore still hesitant to accept such formations. It is particularly in literary usage, as already Marchand (1969, 106) remarked, that people avoid using them, fearing that they are 'not good English'. Speakers of British English are a bit more reluctant than speakers of American English, which is also why the majority of verbal pseudo-compounds continue to develop in American English (Cho 2002, 7; also Marchand 1957, 89).

#### 2.1.3 Analogy as a further source of verbal pseudo-compounds

Whereas Marchand altogether denies the existence of verbal compounds and only offers two types of verbal pseudo-compounds, Adams (1973, 105–109) acknowledges a third type of formation. In addition to back-formation from a nominal or adjectival compound lexeme and zero-derivation from a nominal compound, she (1973, 105) holds that verbal composition can also arise "in the same way as other types of compounds, by linking two words together", although this happens "less often". She labels this type 'verb compounds from other sources', a category comprising those cases where no corresponding noun or adjective compound seems to exist. As an example she gives the verb *to cathedral-look*, which is however a nonceformation (Adams 1973, 108). Examples like these will not be considered here as they are not institutionalized and therefore do not belong to the vocabulary proper.

There are also a few rare cases of non-derived verbal compounds like *to chain-drink* (Pennanen 1966, 115), coined as an analogy with the back-formed *to chain-smoke*, or several compound imperative forms stemming from the domain of care instructions for clothing, such as to handwash or to cold rinse. Due to the vast number of new formations in the last two centuries, Adams wonders if we should not consider the possibility that verbal compounds actually exist after all (Adams 1973, 108–109). However, she also acknowledges that "in each of these cases we should assume the existence of a nominal combination [...] through which these verbs are formed" (Adams 1973, 109).

Erdmann (1999, 245-246), too, agrees that analogy plays a role in the formation of new verbal compounds. As an example he gives the verb to red-pencil ('to mark or circle in red as interesting or noteworthy', 'to mark in red as erroneous or unacceptable' (OED, s.v. 'red-pencil, v')), which has been coined in analogy to the verb to blue-pencil ('to mark, score through, or obliterate with a blue pencil' (OED, s.v. 'blue-pencil, v')). Although he claims to have proven that genuine verbal composition is possible-at the same time admitting that the overall majority is indeed derived (1999, 251)-his explanation does not seem very convincing. He lists three further ways by which genuine verbal compounds can be generated: a) verbs which have been attested earlier than the respective nouns or adjectives, b) nonceformations which did not enter the English vocabulary, and c) genuine compound verbs that have been formed by analogy with another compound verb which lacks a nominal derivation base, and therefore must be primary (Erdmann 1999, 251). To red-pencil, for instance, is analogous to the verb blue-pencil, which is attested earlier (1888) than the nouns blue-pencil (1893) and blue-pencilling (1904) (Erdmann 1999, 246). These recorded dates do not seem very reliable, since they only cover written sources. Moreover, I would argue that the syntactic group blue pencil can in any case be seen as the basis for derivation. Nonce-formations will be excluded from my analysis as far as possible<sup>15</sup>, since only institutionalized lexemes can be regarded as "proper words" from which generalizations can be drawn. Therefore it seems that zero-derivation, back-formation and analogy are the only possible ways of productively producing new verbal pseudo-compounds.

Marchand's approach, as is the case with all groundbreaking theories, has not escaped criticism, of course. It is particularly in the camp

<sup>15</sup> Although it is unavoidable that in the corpus study (chapter 5) a certain amount of nonce-formations is present, since it is at least partly based on a corpus found in Cho (2002), which might have included ad-hoc formations as well.
of functional linguistics that many scholars disagree about how to analyse verbal compounds. The following chapter provides an overview of the most important authors.

## 2.2 Verbal compounds in Functional Grammar

A view opposed radically to Marchand's theory has been proposed by Functional Grammarians, who argue for a direct formation of verbs with a nominal first element, e.g. *to spoon-feed* (Brömser 1985, 99). In his treatment of English verbal compounds, Brömser (1985) addresses several shortcomings in Marchand's framework. The major reproach concerns Marchand's assumption of an underlying noun or adjective compound, on the basis of which verbal compounds have to be analysed semantically, as well as the postulation of a zeromorpheme. Brömser argues that the high number and productivity of verbal compounds can be seen as evidence that they should be regarded as a separate word-formation pattern. In his opinion, verbal compounds arise through direct formation and do not differ from socalled incorporation constructions that result in predicate formation (Brömser 1985, 111).

The general framework for these ideas is provided by Functional Grammar<sup>16</sup> (FG). The basic idea of FG as put forward by Dik (1981) is based on the construction of so-called 'nuclear predications', i.e. "the application of a predicate to an appropriate number of terms functioning as arguments of that predicate" (Dik 1981, 15). This basic idea is essential to the focus of this book. In order to form a correct linguistic expression, the semantic and relational properties of predicates, which can either be basic or derived, are defined in so-called 'predicate-frames', which contain information about its lexical form, its syntactic category, how many arguments it takes, the semantic functions of these arguments, and possible selection restrictions on them (Dik 1981, 15–16). Such a nuclear predicate-frame can

<sup>16</sup> I use the term 'Functional Grammar' to refer mainly to the theory put forward by Dik and taken up by Brömser. For a disambiguation of further possible uses of FG see Helbig (2002, 341–361).

further be extended by what has been called 'satellites', i.e. non-arguments which further specify the state of affairs (Dik 1980, 9)<sup>17</sup>.

In order to approach the topic of verbal pseudo-compounds, which we are interested in here, I would like to discuss the aspect of predicate formation in more detail. A derived predicate must be formed by means of a predicate formation rule, since only the predicate-frames of basic predicates are stored in the lexicon. One rather common, and for our purposes very interesting type of predicate formation, involves what is called 'incorporation' (Dik 1980, 25). According to Dik (1980, 39), this process can be found in many languages and produces constructions like (1) as optional alternatives or obligatory replacements of (2):

- (1) John bird-catches
- (2) John catches a bird

Dik (1980, 39-40) argues that what is involved here is not a transformation of the structure in (2) with that of (1) as the output, because the properties of incorporation cannot be explained by such a procedure. He assumes that it is not 'terms' that are incorporated into the verbal predicate, but rather two 'predicates' (a verbal and a nominal one) are combined in a new derived predicate. The formulation of such a productive predicate formation rule resulting in constructions like (1) would contradict the general statement of the non-existence of verbal compounds. However, Dik (1980, 41) very importantly remarks that English, in contrast to other incorporating languages, cannot use derived verbal predicates as in (1), but necessarily has to take them as starting points to form agent or action nouns like bird catcher or bird catching in a second step. Therefore, predicates like birdcatchy can only serve as intermediate forms for the further derivation of a nominal predicate (Dik 1980, 41-42). When we compare this statement with Marchand's framework as postulated above, where verbal compounds are regarded as back-formations from such nominal compounds, it is clear that the direction of formation is reversed.

<sup>17</sup> For an introduction to Functional Grammar refer to Dik (1980; 1981; 1983).

### 2.2.1 Verbal compounds as incorporation

The starting point for the idea of regarding verbal compounds as instances of incorporation has been Robert A. Hall's article "How we Noun-Incorporate in English" (1956). Although he mentions zeroand back-derivation (Hall 1956, 87), Hall regards English verbal compounds as noun incorporations, which are typical of certain American Indian languages. Noun incorporation (NI) describes a process in which "a verb is derived from another verb by including in the stem a noun element which indicates either a direct object or an adverbial complement" (Hall 1956, 83) and is present in lexemes like *to brainwash, to sightsee* or *to sunbathe* (Hall 1956, 84–86).<sup>18</sup>

Preuss (1960–62, 110) also deals with the difference between back-formation and noun incorporation and argues that backformations with a nominal first element are frequently also called noun incorporation. However, back-formation is not to be equated with the term noun incorporation, since the latter only covers noun + verb combinations, but cannot be used for back-formed verbs with an adjectival or verbal first constituent (cf. also Gerbert 1967, 804; Pennanen 1966, 43).

Hall's ideas on the conception of English verbal compounds as NI have subsequently been taken up by different authors in the field of Functional Grammar (Brömser 1985, 106)<sup>19</sup>. Dik (1980, 39–50), for instance, as mentioned above, understands incorporation not as a syntactic transformation that operates over a predicate-frame and incorporates terms, but rather as the combination of two predicates, resulting in a new, derived predicate (Brömser 1985, 107). In order to support this assumption, Dik (1980, 42–50) lists six characteristics of incorporating structures, which include highly interesting aspects for our purposes and will prove to be a fruitful starting point for our further discussion on English verbal compounds:

<sup>18</sup> Note that the term 'incorporation' traditionally refers to noun incorporation in particular, which means that some treatises are restricted to N+V combinations only, although they are labelled under the general term 'incorporation' (Mithun 2000, 916).

<sup>19</sup> For a very concise overview of some important authors, see Angheli (1992).

First, the incorporated element is typically an uninflected and unmodified nominal stem (Dik 1980, 42–43). As Brömser (1985, 197–198) argues, there is no construction like \**John is the proofs reading*, which shows that incorporation is not to be equated with a simple inversion process. Thus, what is incorporated is a nominal predicate, resulting in the following output (4):

Second, as can be seen from the process described in (3) and (4), incorporation leads to a reduction of the number of arguments of the input, i.e. it typically changes transitive input predicates into intransitive ones (Dik 1980, 43). Brömser (1985, 108–109) notes that a special feature which comes into play here is the fact that once an argument is incorporated, e.g. the Goal argument in the example above, the verbal compound allows for a new predicate-frame, for example with a new Goal argument as in *proofread the book*, which also affects the focus of the sentence.

Third, compound verbs usually have a more generic or habitual reading than non-incorporating constructions. Assuming that a language distinguishes between the constructions in (1) and (2), the verbal compound typically denotes a general, habitual or professional property, whereas the non-incorporating construction can be used to refer to actual events which are determined in space and time (Dik 1980, 45).

Closely connected with this aspect is the next characteristic, which implies that the first element of a verbal compound, i.e. the incorporated nominal, does not refer independently. Thus *bird* in *John bird-catches* does not refer to some specific bird, but takes on a general reading (Dik 1980, 46).

The fifth property describes the tendency of incorporating constructions to develop an idiomatic meaning. Since derived predicates, once they have been formed, can be used to construct predications in the same way as basic ones, they can develop semantic properties (and also formal ones) of their own and thus gradually turn into basic predicates stored in the lexicon (Dik 1980, 49). This can be illustrated with the example *to headhunt*, which to a certain

extent is still analysable as a Goal-relation between the elements *head* and *hunt*, however "with some additional modification" (Brömser 1985, 110).

The last feature of incorporating structures mentioned by Dik (1980, 50) is again closely connected with the preceding one. He argues that "incorporated nominals may become insulated in the predicate formation component or in the lexicon, and thus lose their relation with freely occurring nominal predicates" (Dik 1980, 50). Here, lexicalization and idiomatization come into play, which explain why, for instance, *to applepolish* can no longer be analysed with reference to *apple* and *polish* (Brömser 1985, 110).

It has become clear that Dik does not analyse incorporation as a syntactic operation which freely transforms a sentence structure into an incorporation construction, but rather in terms of a predicate formation rule that results in a new derived predicate (Dik 1980, 50). The literature on NI, however, distinguishes two opposing views on how to conceive of this phenomenon grammatically, which is fundamentally a feature of polysynthetic languages. Basically, the discussion revolves around the question of whether to understand it as a syntactic or morphological phenomenon. Some scholars regard it as a syntactic process, others analyse it as a word-formation process taking place in the lexicon (Cho 2002, 57). Here, we are no longer confined to the field of Functional Grammar, as discussions on the boundary of syntax and morphology constitute a fundamental issue in linguistics in general<sup>20</sup>. Noun incorporation in particular lends itself to this kind of debate, because, as Anderson (2005, 224) puts it, "it involves the construction of units that are unquestionably words from material that gives the appearance of having been combined within the syntax". As this topic is of relevance for our discussion of verbal compounds, I will now go back one step and discuss the most important features of NI in general by taking a closer look at languages that commonly exhibit this phenomenon. By doing this, I hope to throw light on the reasons that motivated some authors to analyse English verbal compounds as instances of noun incorpora-

<sup>20</sup> As I do not intend to go into detail on the basic discussions concerning the opposition of syntax and morphology, for further reading refer to Mereu, ed. (1999) and Motsch (1992).

tion. Without intending to be exhaustive, the following two sections discuss the major points concerning NI as conceived of by the most prominent authors of the two opposing camps.

### 2.2.2 Two types of incorporation

Incorporation has long been a well-debated topic. Even before the idea of analysing English verbal compounds as instances of such an incorporation process arose, scholars were interested in this phenomenon, which can primarily be found in polysynthetic North American languages (Baker 1996, 279). As Bybee (1985, 105) notes, the term 'incorporation' has been used by different scholars to refer to quite distinct phenomena of verb-formation, ranging from compound-like processes to processes which are more similar to derivational morphology. Prototypically, the incorporated element denotes the object of the verb or, semantically speaking, its Patient or Theme. However, there are also instances where the first element represents the semantic Instrument, Location, etc. (Sapir 1911, 282; also Mithun 1984, 875). An early treatment of this topic can be found in a series of interrelated articles by Kroeber (1909; 1911) and Sapir (1911), in which the basic question of whether NI is to be treated as a syntactic or a morphological phenomenon can already be found in its beginning form (Baker 1996, 279-280).

Sapir (1911, 257) defines NI as a "process of compounding a noun stem with a verb [...] no matter what the syntactic function of the noun logically is". He conceives of morphology and syntax as two separate phenomena independent from each other (Haugen 2008, 87). Therefore, he also strongly criticizes Kroeber's (1909, 569) definition of NI as "the combination into one word of the noun object and the verb functioning as the predicate of a sentence". This definition, Sapir (1911, 254–255) argues, requires both morphological aspects as well as syntactical ones, which seems artificial since these two are independent from each other, and which is why NI must be "primarily either a morphologic or syntactic process" (Sapir 1911, 255). From a modern perspective, the discussion between Sapir and Kroeber<sup>21</sup> can thus be seen as the first "Lexicalist" versus "anti-Lexicalist" debate concerning NI (Haugen 2008, 88), Kroeber's definition being "essentially antilexicalist" (Sadock 1991, 79), while "Sapir was the first lexicalist" (Sadock 1991, 80). In his second paper, which is a reply to Sapir's (1911) criticism, Kroeber (1911, 581) actually changes his position and agrees that NI is the "composition of a noun and verb".

As will become clear at the end of this chapter, the syntactic or morphological processes, both called NI, essentially describe two distinct processes that are, however, not mutually exclusive. As Haugen (2008, 89) notes, the morphological process of NI does not necessarily exclude the possibility of an additional syntactic process.

#### 2.2.2.1 Incorporation as a syntactic process

Probably the most prominent authors supporting a syntactic approach to incorporation are on the one hand Baker (1988; 1996), with his movement account, and on the other hand, Sadock (1980; 1986), representing the so-called autolexical approach. Baker (1988, 1), who also works within the framework of Transformational Grammar, regards NI as a syntactic process by which "one semantically independent word comes to be 'inside' another". This is achieved by "applying standard movement transformations to words rather than to full phrases" (Baker 1988, 1). More precisely, this means that an argument of the verb moves from its syntactic position to the verb, with which it combines (Anderson 2005, 225).

Baker's (1996, 279–337) main object of investigation is Mohawk, a Northern Iroquoian language, in which NI is a common feature. Alternations like that in (5), where the second sentence incorporates a noun, are often considered as essentially equivalent by speakers of this language according to Baker (1996, 12):

(5) a. Wa'-k-hnínu-' ne ka-nákt-a'. FACT-1sS-buy-PUNC NE NsS-bed-NSF 'I bought the/a bed.'

<sup>21</sup> For a more detailed discussion on the debate between Sapir (1911) and Kroeber (1909; 1911), refer to Sadock (1991, 78–82) and Haugen (2008, 87–90).

b. Wa'-ke-nákt-a-hnínu-'. FACT-1sS-bed-Ø-buy-PUNC I bought the/a bed.'

Baker (1996, 13) regards NI as syntactic head movements, by which the noun, i.e. *bed*, is interpreted as the head of the noun phrase selected by the verb, i.e. *buy*, and moves in the syntax until it reaches its position within the verb. This is due to what Baker calls the 'Polysynthesis Parameter', a rule which applies to polysynthetic languages and states that "[e]very argument of a head element must be related to a morpheme in the word containing that head" (Baker 1996, 14). This can be fulfilled either through an agreement relationship or a movement relationship (i.e. incorporation) (Baker 1996, 17).

It is important to note that Baker, while stating this for polysynthetic languages like Mohawk, strictly distinguishes it from English. He (1996, 280–281) wonders why syntactic noun incorporation is possible in some languages like the above, whereas in English this kind of movement cannot take place and thus sentences like *\*I bedbought yesterday* are impossible. Admitting that his earlier work (Baker 1988) could not provide a satisfying answer to this question, he now builds on Chomsky's suggestion to regard NI in Mohawk as obligatory rather than optional, in order not to violate the grammaticality conditions. Therefore, the answer for him is simply that English does not display syntactic noun incorporation because, as it is not subject to the Polysynthesis Parameter, "it does not need to, the structure being well formed without it" (Baker 1996, 281).

An important difference that distinguishes noun incorporation in languages like Mohawk from noun + verb compounds in the English language is the fact that in English the noun is non-referential. In a sentence like *Kevin bartends on Friday night* no specific bar is referred to. In contrast, in languages with true noun incorporation, the noun though it can refer to an unspecific or generic class of objects—can also refer to a specific object which is not supposed to be focused on in the sentence. This referential transparency together with the productivity of the process is taken as evidence that we are dealing with a syntactic process (Baker 1988, 78–80). Thus, in contrast to authors who suggest regarding English verbal compounds like *to babysit* or *to bartend* as instances of NI, Baker (1988, 78) treats them as "unproductive and sporadic backformations from the productive deverbal compounds", which "are very different from true cases of NI".

In a later publication, Baker (1996, 307; also 329) admits that there might also exist incorporating constructions which are lexical, although the majority of noun incorporations in Mohawk are still to be considered syntactic. Thus, he (Baker 1996, 330) says that "there seem to be languages where N-V compounding is permitted that still do not have syntactic noun incorporation in the Mohawk sense". Anderson (2005, 238) criticizes such a statement as it "makes the theory rather close to unprovable, since any fact that appears to argue against the syntactic account can be dealt with by saying that in just such a case, the incorporation is lexical".

A second quite influential author who argued for NI as a syntactic phenomenon is Jerrold Sadock, who in his paper "Noun incorporation in Greenlandic: A case of syntactic word formation" (1980) analyses incorporating structures in an Eskimo dialect, also a polysynthetic language. This language can in principle form words of any length; even lexemes consisting of more than ten morphemes are not unusual according to Sadock (1980, 302). It is important to note here that the process called 'noun incorporation' by Sadock is, as he (1980, 306) himself says, "not at all the process described by Sapir 1911". Sadock essentially talks about denominal verb formation in general because the verb stems cannot be isolated, although the construction as a whole fulfils the criteria of word-hood<sup>22</sup>. NI, as traditionally defined, is characterized by the combination of two stems. Denominal verb formation as described by Sadock, in contrast, involves the addition of a bound affix to the stem (Anderson 2005, 226). This important difference must not be neglected, because proper NI is a different process, as Mithun (1986, 32) notes:

In N[oun] I[ncorporation], as commonly understood since Sapir 1911, a noun stem is compounded with a verb stem to yield a more specific, derived verb stem. The Greenlandic construction is based on a single noun stem with a derivational suffix. It is not entirely clear why one

<sup>22</sup> Sadock puts forward seven characteristics which argue for the word-hood of noun incorporating constructions in Greenlandic Eskimo, see Sadock (1980, 302–303).

would refer to this as NI, since it is not obvious what such nouns are incorporated into. In incorporating languages, a verb minus its I[ncorporated] N[oun] is still a well-formed verb; but in Greenlandic, a denominal verb minus its noun stem would be no word at all.

Mithun, therefore, pleads for a strict separation of these two processes. Sadock, on his part, feels he was misunderstood by several authors who have criticized his approach<sup>23</sup> and emphatically restricts his arguments to "those languages where [...] [NI] has a clearly syntactic face" (Sadock 1991, 78). Thus, he in general assigns a syntactic component to noun incorporation, saying that it "has an undeniable syntactic reality in some languages" (Sadock 1986, 19), while at the same time admitting that "in most instances, NI is a 'solidly morphological device" (1986, 30).

## 2.2.2.2 Incorporation as a morphological process

Unlike the syntactic position presented above, some authors favour the analysis of NI as a morphological process taking place in the lexicon rather than in the syntax (Anderson 2005, 226) and argue for a strict distinction between these two levels<sup>24</sup>. Actually, the original understanding of the term 'incorporation' or German Einverleibung, as coined by Humboldt (1767-1835), described the combination of two lexical items, which are not merged into a phrase, but a single unit, an "oversized word" (Nowak 2005, 981). NI is therefore a special kind of stem production or, in other words, a special kind of compounding (Nowak 2005, 981). As mentioned above, the first one to suggest this was probably Sapir (1911). However, as Anderson (2005, 229) remarks, his arguments did not stem from a considered comparison with the other position, since syntactic analysis in its modern sense was not yet available to him at that time. He noticed instead that noun incorporations formally combine two stems, which obviously relates to compounds.

<sup>23</sup> For a concise, but still more detailed overview on the exchange between Sadock and Mithun, see Haugen (2008, 96–102).

<sup>24</sup> E.g. Mithun 1984, Di Sciullo and Williams 1987, Rosen 1989, to name only a few; as well as Wurzel 1998 and 1993 for German.

Probably the most prominent theory to be cited here is the one put forward by Mithun (1984, 1985, 1986, 2010 among other publications). Although she cannot deny a certain proximity to syntax by admitting that NI "is perhaps the most nearly syntactic of all morphological processes" (Mithun 1984, 847), she clearly argues in favour of a morphological account of incorporation. The reason Mithun gives is that NI shares some special features with other morphological processes, which can be of different kinds: First of all, NI can be far more productive than other kinds of derivational processes, since it combines two open sets of morphemes (Mithun 1984, 889). This productivity has in turn often been taken as evidence that NI has to be treated as a syntactic process, e.g. by Baker (1988). However, the productivity is different from that of syntactic constructions, as it is linked to the individual morphemes. Some lexemes tend to be incorporated frequently, while others never are. The reasons cannot be found within the rules of grammar, but are inherent to the lexemes themselves. This phenomenon can be compared with English compounds, where *player*, for example, combines with all kinds of lexemes (games, sports, musical instruments), whereas ache is much more restricted (headache vs. \*footache) (Mithun and Corbett 1999, 53-55). This fact argues against a syntactic analysis, which would allow "the full range of nouns to be incorporated" (Mithun and Corbett 1999, 54), and this means that NI, despite its productivity, is not as free as syntactic processes can be. Moreover, noun incorporations are, just like other products of morphological processes, subject to lexicalization, which is not the case with syntactic constructions (Mithun 1984, 889). The variation in semantic and grammatical transparency as well as various idiosyncrasies can only be captured by considering NI a morphological process. Then, lexemes may change over time, independently from their initial internal structure (Mithun and Corbett 1999, 69–70). In short, Mithun (1984, 891) says that "[f]ormally, it is a morphological process, not a syntactic one; and it shares all the characteristics unique to such a process".

In Mithun's (1984, 847) understanding of noun incorporation, "a N stem is compounded with a V stem to yield a larger, derived V stem". An interesting observation in Mithun (1984, 847–848) concerns the fact that it is common to all languages with

incorporating structures that an equivalent syntactic paraphrase exists alongside the morphological incorporation. Thus, if it is possible in an incorporating language to use a construction that translates Treindeer-slaughter', the existence of a parallel sentence T-slaughterreindeer' can be predicted. Such a systematic parallelism would, of course, not seem very efficient. Therefore, she concludes that "speakers always incorporate for a purpose" (Mithun 1984, 848). She stresses that, in fact, analogous syntactic structures exist in every language alongside productive morphological patterns of this type, which shows that morphologization itself is functional. She classifies NI according to its related functions and arrives at four different classes or types, which are related by an implicational hierarchy that indicates the steps according to which NI historically develops (Mithun 1984, 848). It can therefore also be regarded as an indicator of the degree of grammaticalization (Haugen 2008, 91).

Type 1 fulfils the purpose of 'backgrounding within the predicate' (Mithun 1985, 365-366). Mithun claims that a language displaying incorporation necessarily contains basic lexical compounds. These do not exist without a reason, but denote activities, each of which is "recognized sufficiently often to be considered name-worthy in its own right" (Mithun 1984, 848). Berry-picking or mountain-climbing, for example, are institutionalized activities, which are recognized in a certain context. This does not hold for something like ?ladder-climbing, which would not differ semantically from its syntactic counterpart (Mithun 1984, 848). Thus, "[t]he activity or quality designated by the NV compound is viewed as a recognizable, unitary concept, rather than the chance co-occurrence of some action or state and some entity" (Mithun 1984, 849). What follows from this statement will turn out to be crucial for the purpose of the present book, namely, the fact that the head noun of such a compound is non-referential. Berry in the sentence He is off berry-picking does not refer to a specific set of berries, but rather qualifies the type of picking denoted by the lexeme. Therefore, it cannot take the definite article or the plural marker. If a speaker can chose between two alternative constructions, an incorporating one, e.g. I am coconut-grinding, and an unincorporating counterpart, e.g. I am grinding these coconuts, the latter option would thus be used when the independent object is noteworthy in its own right, whereas the incorporation denotes some unitary activity without the noun referring to some specific object (Mithun 1984, 849–850).

The second type of NI that can be found in incorporating languages serves the purpose of what Mithun (1985, 370) calls 'back-grounding within the clause'. It is an extension of the first type, since it does not only affect the structure of the verb, but of the clause as a whole. Unlike NI of the first type, the second type does not reduce the valency of the verb by one, but allows for another argument in the clause. This kind of incorporating structure is therefore not necessarily intransitive (Mithun 1984, 858-859; also 1985, 370–371).

Type 3 and 4 serve the purposes of 'backgrounding within discourse' and 'classificatory backgrounding' respectively (Mithun 1985, 371–378), but are not included here, as they are of minor importance for this study. These four types are to be regarded as an implicational hierarchy indicating the path along which NI can develop. If a language makes use of one type, then it also has the preceding ones (Mithun 1985, 380). What has been shown is that NI is not an arbitrary alternative to syntax, but serves special purposes (Mithun 1985, 392). In a language like Mohawk, speakers are free to alternate between incorporating constructions and independent nouns and can thus regulate the focus of attention within discourse. New, important pieces of information tend to be focused on by using a separate noun, while already established pieces of information, which do not require special attention, can be backgrounded by means of incorporation (Mithun and Corbett 1999, 52–53).

Nevertheless, as already mentioned, incorporation begins with the first step, namely, as an instance of lexical compounding. Only then might it develop further to be used for the manipulation of case roles in the second step, etc. However, the process may also decay at any stage, which means that incorporating languages do not necessarily develop all four types described above (Mithun 2000, 926).

A second author I would like to mention briefly here is Sara T. Rosen. In her article "Two types of noun incorporation: A lexical analysis" (1989) she reduces Mithun's four types of NI to two. She argues that NI results from two different, presyntactical wordformation processes that take place in the lexicon; one of them changes the argument structure of the verb, while the other does not (Rosen 1989, 294). Whereas Mithun bases her classification on four different discourse functions of NI, Rosen's two categories are purely syntactic (Rosen 1989, 295). The first group of NI is called 'Compound NI' and roughly corresponds to Mithun's types 1-3 (Rosen 1989, 296). Compound NI "is like simple compounding, similar to compounding in English" (Rosen 1989, 295) and in Rosen's theory necessarily produces intransitive verbs since it changes the argument structure of the non-compounded verb (Rosen 1989, 295-296). The second group is called 'Classifier NI' and corresponds to Mithun's fourth type (Rosen 1989, 296). In contrast to Compound NI, here "the incorporated noun does not satisfy an argument of the verb" (Rosen 1989, 296) and therefore does not affect its transitivity. The label Classifier NI stems from the observation that "the incorporated noun acts like a classifier on the noun it is associated with" (Rosen 1989, 296). This means that the object noun must be more specific than the incorporated one, so some languages can, for instance, use a phrase like 'I animal-bought a dog' (Rosen 1989, 297).

The facts about Compound NI are, as Rosen (1989, 309) argues, comparable to English synthetic compounds: "Though in English all such compounds are deverbal (\**meat-eat* vs. *meat-eater*), the noun element may satisfy an argument of the verb element, and that argument cannot occur outside the compound (\**Bill was a meat-eater of rare beef*)". So basically, Rosen (1989, 312) states that "what in the literature is called object or noun incorporation for [languages like] Polynesian is simply compounding, much like the compounding one finds in English (with the one major difference that English only allows deverbal compounds)".

At this point, there is no need to enlarge further on the details of NI in polysynthetic languages, as the central idea should have become clear. As Cho (2002, 58) notes, the debate on NI is interesting for the general discussion on English verbal compounds, but eventually does not provide crucial insights. What is essential is that English verbal compounds share some important features with noun incorporations in those languages, which has led some authors to claim that the English language is developing such an

incorporating verb type (Kastovsky, 1999, 41). Brömser (1985, 111), for example, concludes that "there is no essential difference between English verbal compounds and incorporation constructions in those languages which make use of such a process for the construction of sentences". However, the general opinion of both the "syntactic" and the "lexical" camps is that English verbs like to proofread or to dry-clean are not instances of noun incorporations, but are formed indirectly via derivation from a nominal compound and are thus phenomena of word-formation rather than syntax (Cho 2002, 58). Mithun (1984, 847) states that "[t]he few English constructions that most closely resemble NI (e.g. to baby-sit, to mountain-climb, or to word-process), do not actually result from a productive compounding process, but are rather V's back-formed from compound N's". Baker (1996, 330) agrees and further notes that "the addition of these forms to the language shows no sign of leading to the development of full-blown NI". Cho (2002, 59) outlines some essential differences between NI and English verbal compounds by drawing attention to the fact that English verbal compounds are not restricted to the N+V type, but there are also examples like to dry-clean (A+V) or to dripdry (V+V). Furthermore, noun incorporations can also be expressed systematically as syntactic phrases, which is not always possible with English verbal compounds. The meaning of to cherrypick ('to choose selectively from what is available' (OED, s.v. 'cherry-pick, v')), for instance, cannot be rendered syntactically by saying 'to pick cherries', as the complex verb has an object of its own distinct from the incorporated noun.

To summarize this chapter, it can be concluded that English complex lexemes like *to babysit* or *to cherrypick* are not to be seen as instances of NI because of the fact that they have been derived from synthetic noun or adjective compounds and do not share the characteristics observable in incorporating constructions in polysynthetic languages. Nevertheless, the debate on NI has addressed several highly interesting aspects, which will be taken up in the course of this book.

The last field of linguistic research on which I wish to concentrate is that of Generative Grammar. There are several interesting approaches to compound verbs, and they add valuable insights to the present study.

# 2.3 Verbal compounds in Generative Grammar

In the original Transformational Grammar and in subsequent theories emerging in the field of Generative Grammar, the fundamental idea of which is to define a limited set of rules according to which speakers can produce (or generate) an infinite number of utterances (Chomsky 1973, 9; also 19), verbal compounds as defined in this paper have not been subject to in-depth discussions (Cho 2002, 73-74). However, treatises on synthetic compounds like truck driver or truck driving can be found. Originally, generative grammarians regarded products of word-formation in general as reduced syntactic structures generated by transformations. Not all scholars share this viewpoint, however, and therefore the opposition of a syntactic versus a morphological system is present here as well (Motsch 1992, 71). Supporters of the first group conceive of complex words as being formed by movement in the syntax and thus argue against an independent morphological system. Supporters of the second group, in contrast, postulate two independent systems for syntax and morphology respectively and assume that complex lexemes are formed in the latter (Padrosa Trias 2007, 92). I would like to confine the following discussion to the most important and influential approaches, which in my opinion are Roeper and Siegel's (1978) syntax-based approach and the accounts proposed by Selkirk (1982), Lieber (1983; 1990), as well as that of Ackema and Neeleman  $(2004)^{25}$ .

<sup>25</sup> For a more basic reading on word-formation in Generative Grammar in general, refer to Aronoff (1976).

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## 2.3.1 A syntax-based theory of compound-formation: Roeper and Siegel's Lexical Transformation Theory

In their paper "A Lexical Transformation for Verbal Compounds" (1978), Roeper and Siegel describe verbal compounds as being generated by a transformation process which creates complex lexemes ending in -er, -ing and -ed from a verb and one of its complements (1978, 199). The transformation takes place in the lexicon and considers syntactic structures, which are based on the verb's subcategorization frame, as input (Štekauer 2000, 183). The first crucial aspect to be stressed here is that the lexemes discussed by Roeper and Siegel are called 'verbal compounds' but differ significantly from what is primarily focused on in the present study. Roeper and Siegel's verbal compounds correspond to what are generally called 'synthetic compounds', i.e. cases like oven-cleaner or coffee-maker which have a deverbal second constituent. What I call 'verbal compounds' are referred to as 'root compounds' by Roeper and Siegel. Thus, in Roeper and Siegel's (1978, 206) terminology, "verbal compounds are marked by -ed, -ing, and -er, while root compounds need not show any morphological marking". They claim that in contrast to root compounds, which "may be completely unpredictable in meaning" (Roeper and Siegel 1978, 206), "verbal compounds are (a) predictable and compositional in meaning and (b) extremely productive" (Roeper and Siegel 1978, 207), which justifies the attempt to find rules according to which such compounds are formed, since "a speaker can use a rule-governed process to determine the fundamental meaning of [such lexemes]" (Roeper and Siegel 1978, 201). Despite their productivity, not all combinations are possible, however. Roeper and Siegel (1978, 207-208) maintain that whereas lexemes like *peacemaking* or *fast-falling* are possible, others like *\*fast-supporting* or \*peace-thinking are impossible. They point to the fact that this difference is also reflected in the grammaticality/ungrammaticality of the corresponding sentences: She makes peace and It falls fast are possible, whereas \*It supports fast and \*She thinks peace are ungrammatical. This correspondence is taken as evidence that both compounds and sentences are formed on the basis of a subcategorization frame. According to the linear order of the

subcategorization frame, some combinations can form a compound, whereas others cannot. To illustrate this with an example, the subcategorization frames for *to support* and *to fall* can be rendered as follows:

- (6) a. support [NP] ([Adv]), etc.
  - b. fall([Adv]), etc.

Since *support* obligatorily has a direct object which must be realized, a lexeme *\*fast-supporting* is impossible. *Fall*, on the other hand, does not need a direct argument, and thus *fast-falling* is a possible compound according to Roeper and Siegel (1978, 208).

This fact is accounted for by means of the so-called 'First Sister Principle' (FSP), which states that "[a]ll verbal compounds are formed by incorporation of a word in first sister position of the verb" (Roeper and Siegel 1978, 208). This position is immediately to the right of the verb, occupied by its nearest complement in the verb phrase (Shimamura 1983, 272). This principle constitutes the major hypothesis in Roeper and Siegel's framework and is reflected in a second central rule, called the 'Compound Rule' (Roeper and Siegel 1978, 209). This device is in fact the last step of four succeeding rules that make up the formal machinery underlying Roeper and Siegel's analysis: Affixation or the Affix Rule, Subcategorization Adjustment/Insertion, Variable Deletion and the Compound Rule (Roeper and Siegel 1978, 201–212). The first step of compound formation is defined by the Affix Rule, which supplies one of the affixes -er, -ing or -ed to the right of the verb and an empty frame to its left (Roeper and Siegel 1978, 210). This first rule is essential to produce the structures to which the Compound Rule can apply in the last step (Botha 1984, 5). Compounds ending in -ed necessarily are followed by the Subcategorization Adjustment Rule, which deletes the direct object as well as adjectival and nominal complements from the subcategorization frame and thus correctly excludes these from incorporation into a passive form (Roeper and Siegel 1978, 210). In the next step, obligatory for all three affixes, Subcategorization Insertion takes place. Here, the subcategorization frame specified in the first step is filled with a lexical item (Roeper and Siegel 1978, 211). Subsequently, a further adjustment rule called the Variable Deletion Rule applies.

Generally speaking, it ensures that the correct frame appears in first sister position (Roeper and Siegel 1978, 211–212). A verb like *to build*, for instance, allows for several different subcategorization frames: adverb (*well-built*), Agent (*slave-built*), Instrument (*hand-built*) and Locative (*factory-built*). In order to determine the right one, all optional frames are deleted (Roeper and Siegel 1978, 212).

The aim of these rules is to create a frame that is acceptable as an input to the last and major step, namely the Compound Rule (Roeper and Siegel 1978, 213), which finally transforms a lexeme like *oven*cleaner from clean [N oven] and moves adverbs, adjectives and nouns in the syntax (Roeper and Siegel 1978, 199). More generally, it can be expressed as follows (Roeper and Siegel 1978, 209):

(7) [[empty]+verb+affix] [x<sub>+N</sub>+word] W  $\rightarrow$  [[+word]+verb+affix] W 1 2 3 4 5 4 2 3 Ø 5 where W ranges over subcategorization frames and X<sub>+N</sub> stands for lexical categories N, A, Adv.

When this rule is applied to an example, a compound coffee-maker can be described as follows (Roeper and Siegel 1978, 209):

(8) [[empty]+make+er] [N coffee] W  $\rightarrow$  [[+coffee]+make+er] W

According to Roeper and Siegel (1978, 209), the only complements that can undergo incorporation into such a compound are nouns, adverbs, adjectives and possibly particles.

Roeper and Siegel's verbal compounds like *coffee-maker* or *truck driver* are distinguished from so-called apparent verbal compounds such as *babysitter* or *troubleshooter*. They claim that these derive from the root compounds *to babysit* and *to troubleshoot* (Roeper and Siegel 1978, 217). Such an analysis seems a bit odd and the authors themselves admit that "some of the compound verbs appear to be backformations from the *-er* verbal compounds" (Roeper and Siegel 1978, 217). Moreover, they (1978, 217–218) present a rather disputable position, maintaining that

[i]f *babysit* and *windowshop* were indeed backformations, then our theory predicts that FS decompositions must have existed at the time that *windowshopper* and *babysitter* were formed. The backformations then replace the FS decompositions. In other words, as *windowshop* and *babysit* 

became acceptable, to shop in windows and to sit with the baby became less acceptable.

In fact, Roeper and Siegel (1978, 225; also Roeper 1988, 119–120) put forward a number of diagnostics for defining verbal compounds in their terminology. Accordingly, each question of the following catalogue requires a positive answer to ensure that we are dealing with a verbal compound in Roeper and Siegel's sense (Roeper 1988, 119–120, adapted):

- (9) a. Does it have an affix (-ed, -ing, -er)?
  - b. Is the verbal part non-independent (churchgoer, \*goer)?
  - c. Does it fail to allow the rhythm rule (ChinESE-lover (=compound) and not CHInese-lover))?
  - d. Does it take <u>re</u>-internally (rebrainwashing, story-retelling)?
  - e. Does it have no related compound verb (\*to time-consume)?

These characteristics do not add to the utility of the theory, since they severely restrict the scope of application and certainly only cover a fraction of compound types. The FSP initially said to hold for "[a]ll verbal compounds" (Roeper and Siegel 1978, 208) does not apply if any of the above questions receives a 'no' (Roeper 1988, 120).

Roeper and Siegel's account on compound formation has been heavily criticized by different authors<sup>26</sup>, many of whom even totally deny this approach (Štekauer 2000, 194). One objection concerns the fact that Roeper and Siegel arbitrarily restrict possible verbal compounds to those ending in one of the three postulated suffixes (ten Hacken 2000, 357). Their definition of the notion of 'verbal compound' and the differentiation from root compounds does not seem clear enough to some linguists either. Botha (1984, 9), for example, notes that "[t]he meaning criterion [...] fails in both directions" since there are numerous root compounds with predictable meanings and, more importantly, many verbal compounds that have—contrary to Roeper and Siegel's claim—lexicalized meanings, e.g. *windbreaker, sky*-

<sup>26</sup> E.g. Bauer (1983, 170–174), Shimamura (1983), Botha (1984, 8–34), Kageyama (1985) and Štekauer (2000, 194–200). Kiparsky (1982) was one of the few authors who tried to support this approach, though in a modified way (Štekauer 2000, 194).

scraper, etc. He further disapproves of various aspects put forward by Roeper and Siegel, criticizing that even the "observation basic to this theory-viz. that permissible and impermissible compounds correspond exactly to grammatical and ungrammatical sentences-is incorrect in its full generality" (Botha 1984, 29). Another crucial point is highlighted by Bauer (1983, 181), who calls attention to verbs which are used absolutely and thus can occur without a direct object. Lexemes like vacuum cleaner or breech-loader clearly do not incorporate the direct object, which contradicts Roeper and Siegel's hypothesis that the first sister of transitive verbs which obligatorily require an object has to be precisely this object. Bauer (1983, 181) therefore suggests relaxing the constraints and allowing non-objects for transitive verbs which can also be used absolutely (Štekauer 2000, 194). At any rate, it can be stated that the English verbal pseudo-compounds discussed in this paper, like to babysit, to cherrypick or to lipread, do not follow the First Sister Principle (Cho 2002, 74).

However justified the criticism towards Roeper and Siegel's account may be, their work is still regarded as one of the cornerstones in the study of verbal compounds, and many subsequent theories, like those of Selkirk and Lieber, have been built on it (Kageyama 1985, 8). Whereas Roeper and Siegel clearly position themselves on the "syntactic side", favouring Baker's approach by stating that his "transformational treatment of Mohawk nounincorporation extends naturally to English compounds when the rule of Category Change is included" (Roeper 1988, 115), others maintain that an exclusively thematic analysis, which does not depend on subcategorization frames, is sufficient to account for verbal compounds (Roeper 1988, 119). In the following chapter, three of the most influential approaches will be presented.

### 2.3.2 Morphology and syntax as independent systems

The three approaches to be presented in this chapter consider morphology and syntax to be independent generative systems <sup>27</sup>. Roeper and Siegel's groundwork has been essential here, as the following authors all build on the idea of a verb's argument structure, which is implied in Roeper and Siegel's First Sister Principle. Selkirk and Lieber both argue that this rather general principle should be understood in terms of the argument structure of a verbal element, which must be satisfied within the compound, roughly speaking (Itoh 1985, 21). Selkirk's and Lieber's analyses differ in crucial points however, e.g. in the analysis of synthetic compounds and the applicability of their theory to root compounds. A rather different and relatively recent framework is presented by Ackema and Neeleman (2004), who account for verbal compounds by means of a competition between morphology and syntax. All these theories provide central concepts which will recur in the course of this study.

## 2.3.2.1 Selkirk's Grammatical Function Theory

Selkirk's theory of verbal compounds, which she offers as "an alternative to Roeper and Siegel's transformational analysis" (Selkirk 1982, 30), is embedded in a more general theory of compounding. She (1982, 30) notes that she has adopted many of Roeper and Siegel's insights into her analysis, although the theoretical framework differs considerably. While her publication is entitled *The Syntax of Words* (1982), she nevertheless assumes two independent systems for morphology and syntax and maintains that compounds originate in the first one (Botha 1984, 56–57). As she understands it, "compound words are not formed by syntactic transformation" (Selkirk 1982, 1), but rather have a structure of their own. This word structure and the system of rules for generating it is what Selkirk (1982, 1) calls the 'syntax of words'. Thus, she conceives of morphology as a kind of word-internal syntax (Zwanenburg 1995, 321), in order to stress the

<sup>27</sup> Apart from the three approaches discussed here, there are several other related theories; for an overview of the authors see Ackema and Neeleman (2004).

similarity to normal syntax, as she argues that "word structure has the same general formal properties as syntactic structures and [...] is generated by the same sort of rule system" (Selkirk 1982, 2). Her theory of word structures shares many features with other lexicalist theories of word-formation, but is still set apart from them in that she takes word structures to be generated by context-free rewriting rules that assign a labelled tree, i.e. a structural description, to every word of a language (Selkirk 1982, 3). Her approach to verbal compounds is sometimes referred to as the 'Grammatical Function Theory' referring to the fact that it assigns descriptive roles to grammatical functions (Botha 1984, 56–57).

English compounds are generated by means of rewriting rules, which can produce the following combinations (Selkirk 1982, 15–16):

(10)  $N \rightarrow \{N; A; V; P\} N$  $A \rightarrow \{N; A; P\} A$  $V \rightarrow PV$ 

With regard to the last type of compounds (the ones functioning as a verb) this means that the only possible type in English is the combination of a preposition plus a verb. All other possibilities (N+V, A+V, V+V) are excluded by this definition (Selkirk 1982, 16). Although some authors beg to differ (e.g. Boase-Beier 1987, 74–75), this is in line with Marchand's (1969) framework, which considers such combinations as being derived.

Selkirk's use of the term 'verbal compound' needs some clarification. She distinguishes verbal compounds from nonverbal compounds, with verbal compounds being "endocentric adjective or noun compounds whose head adjective or noun (respectively) is morphologically complex, having been derived from a verb, and whose nonhead constituent is interpreted as an argument of the head adjective or noun" (Selkirk 1982, 23). This is essentially the definition generally provided for synthetic compounds. However, it differs in some respect, since an argument, in Selkirk's framework, is "an element bearing a thematic relation such as Agent, Theme, Goal, Source, Instrument, etc., to the head" (1982, 23). Examples where a locative, manner or temporal specification is added, like *spring-cleaning, homegrown* or *long-suffering*, are not regarded as verbal compounds, because the argument structure of the head is not satisfied (Selkirk 1982, 24). Both verbal and nonverbal compounds are assigned the same formal structure, but the argument structure and the grammatical functions associated with it influence the semantic interpretation (Botha 1984, 58; Selkirk 1982, 28-29). The compound tree eater, for instance, can be a verbal compound, meaning 'an eater of trees' or a nonverbal one, denoting "a creature which habitually eats in trees" (Selkirk 1982, 28–29). In the first reading, tree is the argument of the head lexeme, in the second one it is a locative specification. This semantic ambiguity stems from the fact that eater in a syntactic phrase only optionally requires a complement which satisfies its argument structure (Selkirk 1982, 29). Thus, in contrast, a deverbal noun like devourer, which obligatorily requires a direct object in order for the syntactic phrase to be well-formed (\*? She's an avid devourer vs. an avid devourer of trees), can only be given an argument reading in a compound like tree-devourer (Selkirk 1982, 29-30).

To complete her account of verbal compounds, Selkirk (1982, 34) adds two important generalizations. The first one specifies the status of the subject-argument [=SUBJ argument]:

(11) The SUBJ argument of a lexical item may not be satisfied in compound structure.

This rule, according to Selkirk (1982, 34) excludes compound lexemes like *\*girl swimming* or *\*weather changing* from the pool of possible verbal compounds. Outside the compound, the subject can be satisfied, of course. According to Selkirk, this frequently happens by means of a possessive noun phrase like *I was impressed with the girl's swimming* or *The weather's changing delighted us* (Selkirk 1982, 34).

The second generalization (Selkirk 1982, 36) reads as follows:

(12) All non-SUBJ arguments of the head of a compound *must* be satisfied within that compound immediately dominating the head.

This rule accounts for the fact that a compound like *\*pasta tree eater* (pasta = Theme, tree = Locative) is ill-formed, whereas *tree pasta eater*—with the argument in sister position—is acceptable (Selkirk 1982, 36–37). Even more difficulties are faced when the head lexeme

requires two arguments. Since a compound *\*boot putting on the table* or even *\*table boot putting* are doubtlessly impossible, the only way of nominalising is to say *the putting of boots on the table*. Therefore, a lexeme with two non-subject arguments cannot appear inside the compound (Selkirk 1982, 37).

These restrictions are more generally formulated in a rule that bears some similarity to Roeper and Siegel's FSP, namely the socalled 'First Order Projection Condition' (FOPC):

(13) All non-SUBJ arguments of a lexical category X<sub>i</sub> must be satisfied within the first order projection of X<sub>i</sub>. (Selkirk 1982, 37)

The 'First Order Projection' (FOP) of a category  $X^{n}_{i}$ , in turn, is defined as "the category  $X^{m}_{j}$  that immediately dominates  $X^{n}$  in syntactic representation" (Selkirk 1982, 38). To put it simply, "the non-SUBJ arguments of an item must be 'locally' satisfied, indeed, must be sisters to that item" (Selkirk 1982, 38).

Selkirk's account also had to face some criticism<sup>28</sup>. One objection concerns the status of the subject. Bauer and Renouf (2001, 118) point out that compounds with a subject in nonhead position do exist in English, e.g. *insect flight* or *food spoilage*. As Bauer and Renouf (2001, 118) remark, Selkirk (1982, 128) is indeed aware of this and tries to avoid this problem by suggesting a rather startling solution, proposing that *consumer spending* might not be a compound at all, but a phrase structure with an adjectival modifier.

A further point of criticism is Selkirk's distinction between verbal and nonverbal compounds, in particular the open-endedness of her list of argument-types (notice the wording "Agent, Theme, Goal, Source, Instrument, *etc.*" (1982, 23 [emphasis added]). The only thematic relation that has explicitly been excluded—the locative one—is present however in the enumeration of arguments of other authors (Botha 1984, 62).

Nevertheless, in general, Selkirk's account is regarded as a valuable contribution to the study of synthetic compounds, since it offers a perspective contrary to Roeper and Siegel's syntactic account.

<sup>28</sup> Also refer to Botha (1984), Itoh (1985), and Kageyama (1985).

It should be noted that the insights we get from her theory may be applicable to synthetic compounds, but cannot be directly applied to verbal compounds as defined in this study. However, the central idea underlying her framework, the distinction between argument and non-argument will turn up again in the course of this book.

## 2.3.2.2 Lieber's Argument Linking Theory

Compared to Selkirk's analysis of synthetic compounds, which excludes the existence of an underlying verbal compound, Lieber (1983; 1990) argues the other way round. She solves the branching problem by assuming that a lexeme like *watchmaker* is derived from a N+V compound (Ackema and Neeleman 2004, 56).

The point of departure for her theory is the question of how to account for the fact that some compounds in English are easily formed while others are unacceptable (Lieber 1983, 251). As regards synthetic compounds, she notes that the semantic relationship in a compound like *truck driver* is closely related to that in a corresponding sentence X drives a truck (Lieber 1992a, 89). Thus, her theory refers back to early transformational accounts like that of Lees (1961) and also Roeper and Siegel, however with the crucial difference that she assumes head movement takes place not only within syntax, but also within words (Lieber 1992a, 89-92). She sees the major drawback of Roeper and Siegel's analysis in the addition of a rather complex lexical transformation rule to the grammar, which is not required in her account (Lieber 1992a, 90). She states instead that an independent principle of syntax is sufficient to account for impossible compounds (Botha 1984, 78). In contrast to the two preceding approaches, Lieber does not restrict this principle to the analysis of synthetic compounds, but claims that it covers root compounds (here called primary compounds) as well, maintaining that a distinction between the two is "merely terminological" (Lieber 1983, 259), since "primary and synthetic compounds do obey the same principles" (Lieber 1983, 267).

Lieber's theory of compounding is based on her general theory of lexical structure, the aim of which is to characterize a possible word with a minimum of theoretical machinery. Each verb has an argument structure which must be satisfied to yield a grammatically wellformed construction (Lieber 1983, 251). Lieber (1983, 257) distinguishes internal and external arguments, stating-in accordance with Williams (1981a)-that "all obligatory [...] arguments with the exception of the subject are internal". Distinct from these are what she calls semantic arguments, i.e. "phrases which are not obligatory", like "Locatives, Instrumentals, Manner phrases, Benefactives, Agentives, etc." (Lieber 1983, 257). Compound formation is characterized by the insertion of morphemes into binary branching lexical trees under the condition of certain subcategorization restrictions (Botha 1984, 79-80). The basis of her framework, which accounts for the nonexistence of certain compounds, is the principle of argument linking. This principle rules out sentences like \*Sue hit or \*Ted put the box because in these examples the argument structures of *hit*, which needs a Theme, and *put*, which needs both a Theme and a Locative, are not satisfied (Lieber 1983, 256-257). Applied to the formation of compounds, Lieber (1983, 258) formulates the Argument Linking Principle as follows:

- (14) a) In the configuration  $[]_{\{V; P\}} []_{\alpha}$  or  $[]_{\alpha} []_{\{V; P\}}$ , where  $\alpha$  ranges over all categories,  $\{V; P\}$  must be able to link all internal arguments.
  - b) If a stem  $[\ ]_{\alpha}$  is free in a compound which also contains an argument-taking stem,  $\alpha$  must be interpretable as a semantic argument of the argument-taking stem, i.e. as a Locative, Manner, Agentive, Instrumental, or Benefactive argument.

Thus, a construction containing a prepositional or verbal element as the first or second constituent must be able to link all internal arguments. This also implies that the subject can never be the first element of a compound. This principle is similar to Selkirk's FOPC, although Lieber assumes that her own principle can account for both synthetic and primary compounds (Lieber 1992a, 90).

In compound formation a crucial process called 'Feature Percolation' additionally takes place and describes a mechanism in which "the second stem, being an argument-taking stem, passes on to the compound as a whole (i.e. to the highest node in the lexical structure) its argument structure, along with its category and all of its other features" (Lieber 1983, 262)<sup>29</sup>. This convention builds on the wellknown 'right-hand head rule' in English, which defines "the head of a morphologically complex word to be the righthand member of that word" (Williams 1981b, 248), and explains why synthetic compounds can realize their argument within the compound, whereas primary compounds must satisfy their argument structure within the sentence. Once the argument structure has been passed on to the highest node, it has to be realized externally to the compound within the sentence structure (Rickheit 1993, 90). Thus, in examples like *truck driver*, the element on the right passes on its argument structure to the highest node. In order for the Argument Linking Principle and Feature Percolation to be able to apply at all, the only possible structure assumed by Lieber (1983, 268–269) is the following one:



Figure 2.1: Structure of truck driver according to Lieber

Since "features of one category cannot percolate to a node dominated by another category" (Lieber 1983, 268), the argument structure of the verb stem *drive* percolates to the node V, but not beyond (Lieber 1983, 269). This means that the "node to which the argument structure percolates is not the uppermost" (Lieber 1983, 269) Therefore, the argument of *drive* must be realized within the compound, which is why *truck* is interpreted as the direct object. In contrast, when a verb does not require an internal argument, the first stem can be interpreted as an adjunct, as in *lake-swimming* or *home-dining* (Lieber 1992a, 81).

In contrast, in a primary compound like *hand-weave*, the rightmost element is the verb stem *weave*. Its argument structure is being passed

<sup>29</sup> A more profound discussion on Feature Percolation can be found in Lieber (1992b, chapter 3).

on to the compound as a whole, and therefore has to be satisfied outside the compound in a syntactic structure defining the direct object (Lieber 1983, 258). The first constituent *hand* can therefore not be interpreted as the direct object of the verbal constituent, but denotes a semantic argument (in this case the Instrument) since, as Lieber (1983, 263) notes, if it "is not easily interpretable as an Instrumental, Locative, Manner, Agentive, Benefactive, etc., the compound will normally be unacceptable".<sup>30</sup>

Due to these restrictions, which might restrain productivity, she states that compounds made of two non-argument taking stems, i.e. N+N, N+A, A+N and A+A combinations, are the most productive in English (Lieber 1983, 260). The focus of the present book is on N+V and A+V combinations like *handwash* or *sweet-talk*. These are classified by Lieber (1983, 262–263) under the heading 'Second stem argument taking'. As mentioned above, the Argument Linking Principle states that the nonhead of such lexemes must be interpretable as some kind of semantic argument. Therefore, compounds like *knife-slice, fast-dance* and *slow-dry* are predicted by Lieber to be possible (1983, 264), whereas *\*green-dry, \*high-walk* and *\*blue-shave* are not<sup>31</sup>.

Lieber (1983, 264–265) also tries to cope with V+V compounds, where the second stem passes on its argument structure to the compound as a whole, the argument structure then being satisfied outside the compound. If the first stem was argument taking in its own right, it would have to satisfy its argument structure within the compound, which is impossible in V+V combinations, since a verb cannot be an argument. Therefore, compounds like *\*give-hit, \*appear-eat* or *\*hit-elapse* are clearly impossible. However, Lieber is not quite sure how to deal with cases where the initial verb stem is free, i.e. non argument taking.

<sup>30</sup> Cf. Fanselow (1988a, 46; also 1985, 311 and 1988b, 111) who also points out that "verbal composition is more restrictive than nominal or adjectival composition", one constraint being that "nominal elements within verbal compounds are never interpreted as arguments of the underlying verb, whereas adjunct readings are quite common within the limits of verbal compounding".

<sup>31</sup> In the course of this book it will be shown that the solution to this question is not as easy as this, because further preconditions are necessary for a possible verbal compound.

She proposes that lexemes like *\*fly-drive, \*slip-slide* or *\*fall-float* should indeed be possible.

In a later publication, Lieber (1992a, 80) readdresses the topic of compound verbs and argues that primary compounds containing a verb are the least productive in English. She further acknowledges that the creation of new primary compounds containing a verb stem is particularly difficult and admits that she cannot unfortunately provide a satisfying answer to the question of why verbs like *to \*loudtalk* or *to \*childfeed* are so less likely to be accepted.

Some aspects of her theory have been subject to criticism, e.g. by Booij (2007) and Botha (1984)<sup>32</sup>. The major point of criticism aims at the postulation of verbal root compounds like \*truckdrive in order to maintain Lieber's branching structure. This is problematic according to Booij (2007, 42), who holds that "[t]he main objection to assuming NV compounds as bases for these kinds of derivation [...] is that [...] NV compounding is not productive". It is also just as "impossible to strip VCs [verbal compounds] of their -ing suffix and use them as independent verbs" (Kageyama 1985, 6). Botha (1984, 86-89) also points out that Lieber fails to deal with Selkirk's alternative theory of compounding, which is similar in many ways, but excludes verbal root compounds from the list of possible combinations. Her own framework, as Botha (1984, 107-108) remarks, suffers from certain shortcomings, which are brushed aside too lightly, resulting in "false predictions about the interpretation of such compounds" (Botha 1984, 108). The fact that primary and synthetic compounds are being treated the same way also leads to a certain confusion of the structure of compounds with that of derivations (Botha 1984, 108).

As a concluding remark, it is important to note that Lieber (1992a) reacted to this criticism and revised her analysis of synthetic compounds, admitting that primary verbal compounds like *\*truckdrive* are indeed "not formed productively in English" (1992a, 85). She (1992a, 85) also concedes that "a grammar which generated [...] [such a] structure for synthetic compounds would have to overgenerate large numbers of nonoccurring (and inpossible) [sic!] verbal compounds".

<sup>32</sup> Further aspects of criticism can be found in Itoh (1985), Roeper (1988, 123–124), and Zwanenburg (1995).

The underlying structure of *truck driver* is thus no longer considered to be [*truck* + *drive*] + -*er*, but conforming to Selkirk is *truck* + [*drive* + -*er*] (Lieber 1992a, 85). Even more, she also reacts to the reproach of making false predictions about possible and impossible compounds, by partly withdrawing her principle of argument satisfaction by saying that "when internal arguments are satisfiable outside the synthetic compound, the first stem is also interpretable as an adjunct" (Lieber 1992a, 81), as in *the home-growing of tomatoes* or *machine-picking of strawberries.* Taken as a whole, it seems that Lieber's framework obviously cannot provide a completely satisfying account for all verbal compounds in English.

## 2.3.2.3 Ackema and Neeleman's Morphosyntactic Competition Theory

A completely different account which broaches the opposition between syntax and morphology is Ackema and Neeleman's (2004) 'Morphosyntactic Competition Theory', which is relevant for synthetic compounds as well as root compounds. Syntax and morphology are taken to be independent generative systems (Ackema and Neeleman 2004, 17). The central claim is that the formation of compounds takes place in morphology, but at the same time syntax plays a crucial role, as it "competes" with morphology for the privilege of combining elements into complex structures (Ackema and Neeleman 2010, 27) and thus excludes certain combinations from the pool of possible lexemes.

Their theory builds on the assumption that synthetic compounds are based on root compounds, i.e. *truckdrive* is present in *truck driver*. Despite this assumption they are aware of the fact that N+V compounds in which the first element is an argument of the verbal head are systematically absent in English (Ackema and Neeleman 2010, 24–25). Back-formed verbs like *brainwash* are possible, but in such cases the verb is actually de-transitivized, i.e. the noun does not serve as an internal argument, as sentences like *They brainwashed the victim* illustrate. This difference between synthetic compounds, in which the nonhead can be an argument, and root compounds, where this is impossible, is explained by a competition between syntax and morphology (Ackema and Neeleman 2010, 25–26) and this assumption also accounts for the fact that root compounds that do not surface themselves in the language can be the basis of synthetic compounds (Ackema and Neeleman 2010, 21).

Ackema and Neeleman's (2004, 51) theory of morphosyntactic competition states that in the English language the preferred locus of merger of lexical items, as they call it, is syntax rather than morphology, since "[s]yntactic generation of structures is unmarked with respect to morphological generation" (Ackema and Neeleman 2004, 50). Ackema and Neeleman (2004, 51) formulate their constraint in the following way:

- (15) Let  $\alpha_1$  and  $\alpha_2$  be syntactic representations headed by  $\alpha$ .  $\alpha_1$  blocks  $\alpha_2$  iff
  - in α<sub>1</sub> (a projection of) α is merged with (a projection of ) β in syntax, while in α<sub>2</sub> (a projection of) α is merged with (a projection of) β in morphology, and
  - (ii) the semantic relation between  $\alpha$  and  $\beta$  is identical in  $\alpha_1$  and  $\alpha_2$

This indicates that—at least in non-polysynthetic languages, as Ackema and Neeleman (2010, 27) remark <sup>33</sup>—syntax can block morphological merger under certain circumstances, provided that "all else is equal" meaning that "projections of the same categories merge, and [...] that the semantic relationship between these projections is identical" (Ackema and Neeleman 2010, 27). I would like to illustrate this with an example: The grammar provides us with two generative systems to combine elements. Thus theoretically, a verb *drive* can be combined with its argument *truck* either in a syntactic or a morphological structure: *to drive trucks* vs. *to truckdrive*. Since in both cases the semantic relation is the same, Ackema and Neeleman hold that competition applies, in which syntax as the unmarked option wins over morphology. This principle excludes all N+V compounds in English in which the noun is an internal argument of the verb

<sup>33</sup> Note that Ackema and Neeleman (2004, 85–86) point out that there might be languages that function the opposite way: whereas English employs syntactic constructions, polysynthetic languages minimize syntactic complexity and prefer morphological merger.

(Ackema and Neeleman 2004, 59–60). Thus, if, in contrast, syntactic merger cannot render the semantic relation between the constituents, there will be no blocking. Indeed, the meaning of existing compound verbs like *to colour-code* or *to breastfeed* cannot be encoded by a syntactic combination, i.e. *to colour-code* is not the same as *to code colours*. In such cases, no competition arises, because it is not the same categories that merge; in the compound *to colour-code* a noun and a verb are combined, whereas it is a verb (*to code*) and a prepositional phrase (*WTTH colours*) in the syntactic structure (Ackema and Neeleman 2004, 60).

This implies that "morphological merger is only an option when there is no syntactic competitor" (Ackema and Neeleman 2004, 52), i.e. when a syntactic merger cannot express the semantic relationship (Ackema and Neeleman 2004, 52). Going one step further, the question arises of why synthetic compounds like *truck driver*, in which the noun serves as the internal argument, exist next to the syntactic phrase *driver of trucks*, while this parallelism has been excluded for root compounds (see above). In order to account for this difference, Ackema and Neeleman (2004, 61) base their analysis of synthetic compounds on the following structures<sup>34</sup>:



Figure 2.2: Structural analysis according to Ackema and Neeleman

The reason why there is no competition between these two structures is that in (b) the noun *truck* merges with the verb *drive*. In (a), how-

<sup>34</sup> Note that the analysis in Fig. 2.2 (b) is the only way to solve the branching problem, if Ackema and Neeleman's theory is supposed to account for the fact that synthetic compounds like *truck driver* and the parallel syntactic structures can coexist, while this is excluded for root compounds (Ackema and Neeleman 2004, 58).

ever, the extended projection of *truck* does not merge with a verb as well, but with a derived noun, i.e. *driver*. Thus, the theory predicts that synthetic compounds and complex NPs can coexist (Ackema and Neeleman 2004, 61).

Coming back to verbal root compounds, Ackema and Neeleman (2004, 50) assume that grammar contains a lexicon, which stores "syntactic, morphological and phonological irregularities". They (Ackema and Neeleman 2004, 88) further argue that due to the preference to combine items in syntax, morphological combinations need to be triggered. In order to minimize lexical storage only unpredictable items, i.e. combinations with non-compositional semantics, will be triggered. Put differently, this simply means that "there must be a reason to list that particular combination in the first place" (Ackema and Neeleman 2004, 80). Thus, the meaning of lexemes like to breastfeed, to carbondate or to air-condition must be stored, as it is not possible to formulate any generalization concerning their semantics, other than that the noun can never be the internal argument of the verb (Ackema and Neeleman 2004, 81-82). Given these statements, it seems to be questionable whether an instrumental relation as in to hand make is less transparent than a theme relation assumed in to \*truckdrive, which is said to be responsible for the ungrammaticality of the latter. Therefore, it remains to be seen (see chapter 5 of this book) whether it is indeed feasible to generalize that all non-object relations are possible in English as verbal root compounds. Even though Ackema and Neeleman (2004, 82) state that this semantic condition is to be regarded as a complementary analysis in addition to morphosyntactic competition, the problem of their analysis seems to lie in the postulation of genuine verbal root compounds. As has been mentioned, they assume that, with the exception of argument + verb combinations, "N-V compounding as such is widely attested in English" (Ackema and Neeleman 2004, 55). As examples they list lexemes like the ones given above, which they find to be productively coined in English (Ackema and Neeleman 2004, 55). However, they (Ackema and Neeleman 2004, 59) explicitly exclude the position adopted by Marchand (1969), who treats verbs like to babysit as back-formations. Ackema and Neeleman (2004, 59) argue that "[t]he word does not come with the warning that it is a

back formation" and that a "child learning English does not know how *to baby-sit* was coined", but rather "finds a structure in the input which is best analysed as a N-V compound".

In the following chapters, it will be argued that, on the contrary, from a cognitive point of view, the word does indeed seem to come with that warning and that while speakers may not know how a lexeme like *to babysit* has been formed, the structure, which may superficially be analysed as a N+V compound, is processed in a rather different way. Thus, a lexeme like *to \*table-eat* ('to eat AT the table'), which does not compete with a syntactic structure in Ackema and Neeleman's sense, is still not necessarily a possible lexeme in English simply on the grounds that the relation is non-argumental, as claimed by Ackema and Neeleman.

In conclusion, Ackema and Neeleman add a fundamentally new viewpoint to the analysis of verbal compounds and synthetic compounds within the field of Generative Grammar. Their framework is able to account for a huge number of possible and impossible lexemes in a plausible and reasonable manner. However, their line of reasoning is at times too weak to explain the difference between lexemes like *to hand make* (Instrument), which they accept, and *to \*spongeclean* (Instrument), which does not exist.

Having reviewed the existing literature dealing with English verbal compounds, it becomes obvious that verbal compounding is still a rather peripheral area of research compared to other highly debated topics in linguistics. Two aspects are particularly striking in this respect: First, literature on verbal compounds (root compounds) centres around the discussion of whether such a verb type exists and how it can best be analysed. As we have seen, various opinions and diverse treatises do exist. The present study will not deal with this question since the extant frameworks lead to the conclusion that arguments can be found for both positions, in favour of and against verbal compounds. The upcoming discussions therefore build on the assumption that genuine verbal compounds do not follow any productive word-formation pattern and are hard to find in the English language. Based on this premise, the overarching goal of this study is to determine reasons for the apparent lack of productivity.

Second, both in Functional and in Generative Grammar, the two areas that have most extensively dealt with synthetic and verbal compounds, the relationship of syntax and morphology has been the centre of interest, and this can most clearly be seen in the strict position that the different authors assign themselves to within this system. Such investigations are restricted, as they are purely concerned with the grammatical rules underlying these structures. The language user as such and the way language is being processed by the speaker/hearer are not taken into account. To my knowledge, an extensive analysis of verbal compounds within the framework of cognitive linguistics does, however, not exist. Therefore, the question of why verbal compounds do not seem to exist in English will be examined from a cognitive-linguistic point of view, while at the same time keeping in mind the insights drawn from the theories discussed up to this point. In the next chapter, the theoretical foundations which are relevant for my framework will be introduced.
# Theoretical background: Towards a cognitive-linguistic approach to verbal compounds

Cognitive linguistics began to develop as a linguistic discipline in the late 1970s (Peeters 2001, 90). At that time

[t]he discovery (or sometimes rediscovery) that cognitive connections [...] play a central role in semantics, and more generally in the organization of thought, had important consequences for the research on meaning undertaken after the mid-seventies. Emphasis was shifted from the study of logic-like sentence meaning to that of the cognitive constructions which sentences help to set up—metaphoric projection, frame organization, roles, figure-ground configurations, metonymic pragmatic functions, mental space links, cognitive schemas, and cultural models. (Sweetser and Fauconnier 1996, 8).

The above statement summarizes in brief the most important building blocks of cognitive linguistics which will play a role in the following chapters. Cognitive linguistics regards language as an "integral facet of cognition", rather than a separable "mental faculty" (Langacker 1998, 1). In the focus of interest are aspects like language categorization, language processing, the mental processes involved, the role of the mental lexicon, etc. When it comes to novel complex lexemes, the central question concerns the issue of how the related concepts are formed in the minds of the speakers (Schmid 2005, 18). Among the most influential authors in the field of cognitive linguistics are George Lakoff, Ronald Langacker and Leonard Talmy, as well as Mark Johnson, Mark Turner and René Dirven, to name only a few. The following chapter is not intended to provide a comprehensive overview of cognitive linguistics<sup>35</sup>, but rather aims at outlining

<sup>35</sup> For an introduction into cognitive linguistics refer to Geeraerts, ed. (2006) and Ungerer and Schmid (2006).

the theoretical background that will be relevant for the empirical analyses to come. The different aspects to be discussed are all highly interconnected, but for expository reasons they have been divided into different subchapters. These subchapters will deal predominantly with noun + noun compounds, simply because of the fact that most existing research has dealt with this type of compound rather than with verbal ones. This focus on N+N compounds may stem from "a general preference for this type of compound in most languages", as Dressler (2006, 23) remarks. However, this will not limit the insights that can be derived about verbal compounding. The line of reasoning starts with the 'birth of new words', i.e. what happens to novel lexemes on their way to establishment. One step further, when lexemes are combined into complex concepts, the question arises of whether there are any constraints to complex word-formation or whether this process is unrestricted. In a next step, once a speaker faces an existing complex lexeme, the cognitive processes that come into play become relevant. The issue of profiling-one of the most basic principles underlying human cognition-will play a decisive role in answering our research question, as will become clear in the course of this book.

#### 3.1 The birth of new words

The vocabulary of the English language is not a static system, but subject to constant change due to the addition of new lexemes and the loss of obsolete words. Compounding of two free lexical morphemes is only one possibility among a variety of word-formation patterns the English language has at its disposal (Schmid 2011b, 69– 70). Irrespective of the nature of the word-formation pattern underlying it, a novel lexeme necessarily starts out as an ad-hoc formation when it is first being used by a speaker or writer. Following this first occurrence, it has to pass through various stages before it finally becomes a fully established lexeme. These stages are 1. creation, 2. consolidation, and 3. establishment (Schmid 2005, 72– 73; also Schmid 2011b, 70–71). Depending on whether a structural, socio-pragmatic or cognitive perspective is adopted, the processes involved can be called 'Lexicalization', 'Institutionalization', or 'Hypostatization' (Schmid 2005, 73; Schmid 2008, 3). Under these headings, the following three subchapters will provide some further information concerning the establishment of new lexemes. In this context, the approach put forward by Schmid (2005; 2011b) will be adopted.

#### 3.1.1 Lexicalization

In English, compounding is one of the most frequent wordformation patterns that satisfies the need for new words. From a structural point of view, a word can be said to be lexicalized, i.e. integrated into the lexicon, once it has passed through the processes of creation and consolidation and reached the stage of being fully established (Schmid 2005, 79). In a more general sense, lexicalization is regarded as a gradual process and-at least according to Lipkanecessarily dependent on the frequency of usage of the respective lexeme (Lipka 1981, 120). Lipka (2002, 111) defines it as "the phenomenon that a complex lexeme once coined tends to become a single complete lexical unit, a simple lexeme. Through this process it loses the character of a syntagma to a greater or lesser degree". This was already implied by Sweet (1892, 24), who stated that "[t]he formal distinction between a compound and a word-group evidently is that in a compound the elements are associated more closely together" and that "compounds must have special meanings of their own, for otherwise there would be no object in distinguishing them from word-groups" (Sweet 1892, 26).36

Although Lipka (1977, 15) holds that lexicalization can only be explained diachronically, he points out that there are also lexemes which are lexicalized right from the beginning. Referring to Paul (1970, 90), Lipka (1981, 122) calls such cases 'instantaneous coinings', to account for examples like *pedestrianization* ('action or process of

<sup>36</sup> Closely connected with the notion of lexicalization are the terms 'idiomatization' and 'demotivation', the usage of which is by no means uniform. Cf. Lipka (1981, 121); Lipka (1990, 96). Also Günther (1974) and Kastovsky (1974).

prohibiting wheeled or motor traffic from a road', OED, s.v. 'pedestrianization, n'), which have a specialized meaning from the very start, and adds that this phenomenon can be found particularly in technical languages (Lipka 1981, 122). Schmid (2008, 4) goes one step further and argues that "diachronic change may well be less important for semantic lexicalization than is generally assumed", pointing to a large-scale dictionary study carried out by Handl (1999), who traced the lexicalization of about 400 neologisms that were coined between 1958 and 1973, and found that "no less than 39% of the neologisms had idiomatic meanings at their very birth" (Schmid 2008, 5). Schmid (2008, 24-26) therefore questions the direct interdependence of semantic transparency and frequency of usage by pointing to some interesting facts, which will only be touched upon briefly in order to not anticipate too much. He argues, for instance, that it seems plausible that instantaneous coinings with non-compositional meanings (like metaphors or metonymies) might require fewer repetitions than transparent lexemes before becoming entrenched in the mental lexicon. This might be due to an increased cognitive effort that is needed for their processing, which consequently leaves stronger traces in our cognitive system. This implies that lexemes which are particularly eye-catching might have a good chance of being entrenched right from the beginning. Moreover, not only entrenchment, but also opacity, might or might not be fostered by frequency. The answer to this question not only lies in the mere frequency of usage, but rather in the diversity of contexts in which the lexeme is being used, since repeated usage in various contexts creates a well-defined, but at the same time also increasingly complex and specified concept. Thus, it may be necessary to expand Lipka's definition of lexicalization as a gradual phenomenon to a certain degree and allow for the possibility that certain lexemes have a lexicalized meaning right from the start. The reasons mainly lie in human cognition and will be dealt with extensively in 3.1.3.

The traces left by lexicalization can be of different kinds (Bauer 1983, 50–61; Lipka 1981, 127–129). In general, the following different types of changes which result from the lexicalization are distinguished: phonological, graphemic, morphological, semantic, and syntactic ones. Some of the most striking changes on the formal side

are changes in stress patterns (*bláckbird* vs. *blàck bírd*) or sound change (/hɒli/ in *boliday*), or unpredictable syntactic behaviour, like unusual word order (*pickpocket, telltale*) (Bauer 1983, 50–60). However, Lipka (1981, 128–129) regards these as rather superficial symptoms of lexicalization and prefers to concentrate on semantic changes, to which he assigns particular importance, as they are considered responsible for isolation. Semantic changes are responsible for the fact that increasing lexicalization reduces the compositionality of meaning, i.e. the meaning can no longer fully be derived from the constituents and thus the lexeme is no longer transparent (Bauer 1983, 58).

All of these functional and semantic changes that are related with lexicalization reflect the distinctness of the complex lexeme in question from a parallel syntactic phrase, i.e. a *wheelchair* is not any 'chair with wheels'. One of the major functions of expressing an idea by means of a compositional word-formation pattern is that of compressing information, which is in line with the principle of linguistic economy. In this regard, lexicalization is a suitable means of excluding ambiguity (Lipka 1981, 129–130). Since the economy of the lexicon excludes the possibility of redundant information and thus favours the non-compositionality of meaning, it is probable that the same will also hold for complex verbs. It is therefore assumed that the meaning of a verbal compound cannot be rendered sufficiently by a parallel syntactic phrase. An extensive analysis will be carried out in chapter 5.

#### 3.1.2 Institutionalization

Whereas the term lexicalization denotes the establishing of a lexeme from a structural point of view, i.e. considering the development of the lexeme itself with its morphological and semantic properties, the term 'institutionalization', according to Schmid (2005; 2011b) sheds light on this phenomenon from a socio-pragmatic perspective. Not only formal and semantic aspects play a role in the development of a lexeme and the question of whether a newly formed word becomes part of the vocabulary of a language. The social aspect, i.e. the language community's using it, is crucial as well. Thus, from this socio-pragmatic perspective, the focus is on the spreading of a lexeme in a speech community and its eventual institutionalized status (Schmid 2008, 2–3).

According to Fischer (1998, 15), the term institutionalization was introduced by Laurie Bauer, who defined it as the second stage in the history of a lexeme, which begins "when the nonce formation starts to be accepted by other speakers as a known lexical item. Typical at this stage (especially for compounds) is that the potential ambiguity is ignored, and only some of the possible meanings of the form are used (sometimes only one)" (Bauer 1983, 48). He further states that any institutionalized lexeme is still transparent and can be analysed (Bauer 1983, 48). It becomes clear that Bauer uses the term slightly different from the way it is defined in this book, since he regards it as the pre-stage to lexicalization proper. However, as has also been remarked by Fischer (1998, 15), "[i]nstitutionalization describes a primarily social phenomenon, while lexicalization depicts a primarily morphological-semantic one and should therefore be kept apart". Thus, institutionalization and lexicalization go hand in hand, describing what happens to a novel lexeme from two different angles. One possible intention for creating a novel formation is to express an idea in a short and precise way or in order to be particularly funny or creative (Schmid 2005, 75). Mencken (1949), in his paper on new verbs, draws attention to the fact that new nouns are formed readily, whereas new verbs have always been met with a certain hostility in the history of language. The reason may be according to Mencken (1949, 313), that newly invented objects that need to be named cannot be escaped, while this is not to the same extent the case with activities. Once an ad-hoc formation is being used for the first time, co- and context help to reduce the ambiguity of meaning. In the further development, however, the lexeme gains increasing acceptance and speakers recognize it as item-familiar, i.e. it becomes institutionalized. At the same time, on the structural level, both meaning and form stabilize (Schmid 2008, 4). Item-familiarity ensures that a lexeme like telephone box does not denote a 'box shaped like a telephone', although this meaning would not be excluded by the construction itself (Bauer 1983, 48). What is involved here is the fact that novel compounds fulfil a naming function and the natural tendency to consider only nameworthy categories (Lipka, Handl and Falkner 2004, 10), see chapter 3.2.

Obviously not all ad-hoc formations survive in the long run. The vast majority of novel formations only serve a particular purpose at a particular time and do not become institutionalized. Whether a coinage spreads within a language community depends on several factors. Words which name new and highly relevant referents, e.g. from the field of technology, have good chances of becoming established. So do expressions which attract both public and media attention, e.g. they have been used by politicians or other influential personalities and thus reached a bigger audience than a word coined by a private person. Finally, factors like form, sound and originality of the idea denoted by a novel lexeme influence its being accepted by the language community. Thus, whether a novel lexeme becomes accepted and institutionalized is ultimately dependent on the language users who select and spread it (Schmid 2011b, 75–76).

#### 3.1.3 Hypostatization/concept-formation

To present a comprehensive picture, the third perspective on the establishment of new lexemes to be considered here is the cognitive one, which will be discussed in some greater detail, because it provides several highly relevant aspects for the cognitive focus of this book. Whereas the two preceding viewpoints focus on the development of the lexeme itself and its diffusion in a certain speech community respectively, the cognitive perspective concentrates on the "formation and entrenchment of a concept associated with the word in the minds of the members of a speech community" (Schmid 2008, 2). At the moment of creation, a new word starts out as a pseudo-concept, i.e. the "preliminary stage in the conceptual creation of complex lexemes" (Schmid 2011b, 74); then, with ongoing consolidation in the minds of the language users, the process of hypostatization takes place, which eventually leads to a hypostatized concept at the stage of establishment (Schmid 2008, 3).

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Several authors have dealt with the notion of 'hypostatization', which was used by philosophers and linguists even before the existence of cognitive linguistics to denote both the effect of concept-formation and reification (Schmid 2000, 368). Leisi (1961, 23-24) characterizes it by the tendency to reify (or at best personify) any phenomenon that can be denoted by a word and to elevate it to a uniform and holistic entity on the one hand, and the impossibility to decompose the meaning complex related to a lexeme on the other. Based on this idea, Lipka (1977, 161) defines hypostatization as the phenomenon that "the existence of a particular word creates the impression that there is a corresponding thing or entity to which the word refers" (Schmid 2008, 5). Hypostatization has been regarded by Lipka (1977, 155) as a cause of lexicalization. However, it is important to note that not only complex lexemes are concerned, as is the case with lexicalization. On the contrary, hypostatization is a ubiquitous phenomenon which affects simple lexemes as well (Lipka 1977, 155). The naming function of lexemes leads to an existential presupposition and thus to hypostatization (Lipka 1981, 131), which is responsible for the impression that a linguistic sign always denotes one single, holistic class of referents (Lipka 1977, 161-162). This "calling into existence of a category", as Leech (1974, 37) describes it, is responsible for the fact that a compound like bed-maker implies "that there is a special institutional category of person, whose function or habit is to make beds" (Leech 1974, 37). Thus the meaning of Is she a bed-maker? is different from the meaning of Does she make beds? (Leech 1974, 37). Lexicalization, i.e. a process that makes a complex lexeme a unit, is therefore triggered by hypostatization (Lipka 1977, 161-162). According to Lipka (1977, 161) hypostatization becomes manifest in what is called reification, the impression of a holistic substantial, i.e. thing-like nature with clear-cut boundaries (in Schmid 1999, 222). This idea is often additionally supported by the existence of a concrete referent. The fact that the lexeme raincoat, for instance, denotes a concrete, graspable referent, creates the impression that this must also be true for more abstract lexemes (Lipka 1977, 161).

This idea is again based on what Leech (1974, 37) called the "concept-forming' power of the word", i.e. the impression that "words stand for concepts" (Schmid 2008, 5). A 'concept' has been

defined as "a basic unit of mental representation that is established as the product of cognitive categorisation operations" (Börger 2007, 118). In cognitive linguistics, "the meaning of a given linguistic expression is thus equated with the concept it expresses" (Börger 2007, 118). Concepts are characterized by the fact that in the speaker's mental lexicon *one* linguistic form is linked to *one* meaning complex. Additionally, they contain the knowledge about which concrete objects and abstract circumstances are part of the cognitive category associated with the form, and which are not (Schmid 2005, 76).

In the very beginning of its development, i.e. at the stage of an ad-hoc formation, a lexeme has not yet been entered in the mental lexicon and therefore does not form a proper concept. This preliminary stage in the process of concept-formation can be called preconceptual or pseudo-conceptual. Language users determine the meaning of such a pseudo-concept from the constituents of the lexeme rather than recalling it as a unit (Schmid 2005, 76-77). Such an analytic interpretation of a novel complex lexeme relies on three different types of information: the meanings of the constituting elements, knowledge about the morphological structure and the wordformation pattern involved, and contextual information (Schmid 2008, 10). In the second stage, the contribution of the constituent concepts begins to fade, and the pseudo-concept begins to form one single, holistic concept, which does not equal the sum of the concepts represented by the constituent morphemes anymore, and thus represents a conceptual 'gestalt' (Schmid 2005, 78). A fully hypostatized concept, eventually, can be accessed directly by the members of the speech community, since it constitutes a proper entry in the mental lexicon. The meaning is remembered rather than composed from the constituent elements, which is why the concept may also begin to link further associations (Schmid 2005, 83). To illustrate this with an example, the meaning of treetop-hugging, an adjective which metaphorically describes flights at low altitude as if almost touching the treetops, may at an early stage of development be derived from the individual morphemes; with ongoing hypostatization, the link to treetops and hugging fades and the speaker rather thinks of flying at a low height directly without taking recourse to the constituents. Once

fully hypostatized, the concept receives additional associations, which may have to do with danger and military attacks, for instance (Schmid 2005, 75-83).<sup>37</sup>

Leisi (1961, 24) distinguishes several forms of hypostatization, depending on the word class: a noun renders the meaning as a thing, an adjective as a property, and a verb as an action. Although this hypostatizing potential is inherent in all types of words that express content, the effects are seen to be stronger and more salient in some word classes than they are in others. Nouns exhibit a natural tendency to hypostatize concepts as object-like "things" with clear boundaries, which are stable across space and time, and therefore their hypostatization potential is stronger than that of adjectives or verbs (Schmid 2008, 6; also Schmid 2000, 368). As Schmid (2008, 9) points out, a new practice in the field of gardening comprising the 'artistic arrangement of flowers and shrubs planted in pots and other containers' has been labelled potscaping (probably in analogy to landscaping). He (2008, 9) notes that "[i]t is no coincidence that this new practice was couched in terms of a nominalization, since, as we have seen, the noun has a more powerful hypostatization potential". I will return to this point later in my analysis.

In this context I would like to digress briefly to include another crucial point, which has been touched upon above, namely, that of temporal stability. Lexical categories differ with respect to the stability of their referents across time. Nouns, for instance, usually denote time-stable "things", whereas verbs denote temporal relations, which are non-stable (Dirven and Verspoor 1998, 57). This idea was proposed by Givón (1979, 321), who suggested that "we are faced with [...] a *continuum of time stability*" [emphasis in original], which is reflected in the major lexical classes. Accordingly, nouns, adjectives, and verbs are located in different areas of this continuum, with nouns being one end of the scale, i.e. constituting the most time-stable group of lexical classes, and verbs the other, i.e. constituting the least

<sup>37</sup> For further reading on the process of lexicalization and concept-formation refer to Ungerer and Schmid (1998), who carried out an attribute-listing experiment in order to determine the conceptual contribution of the constituent concepts of nominal compounds. The result is three types or stages of lexicalization, depending on the degree of dependency on the individual constituents.

stable group. Adjectives can be found in between, though there are some which are closer to nouns and others which share more characteristics with verbs (Givón 1979, 14). This means that since there are always more or less prototypical members of a word class, the degree of temporal stability may vary within one group, e.g. an adjective like green is more stable than an adjective like sad (Givón 2001, 54). The same can be said of verbs, where instantaneous verbs like *shoot* or *hit* are, of course, less time-stable than activity verbs like sing or eat, where the process of change is much slower. Even more extreme are long-lasting states like know or like, where hardly any change is perceived (Givón 1984, 52). According to Givón (2001, 50) the term 'temporal stability' defines the "rate of change over time". Thus, on the one hand, there are "[e]xperiences [...] which stay relatively stable over time, i.e. those which over repeated scans appear to be roughly 'the same"' (Givón 1984, 51 [emphasis in original]); these are usually lexicalized as nouns. Concrete physical objects like rock, tree or dog, for example, appear to persist for a long time without changing, although it becomes obvious that animates cease to be faster than non-animates (Givón 1984, 51). On the other hand, there are events or actions, prototypically characterized by "rapid changes in the state of the universe" (Givón 1984, 52 [emphasis in original]); languages display a strong tendency to lexicalize those actions as verbs (Givón 1984, 52).

Coming back to the hypostatization potential of nouns, it can be stated that the use of a noun implies that a temporally stable cognitive category exists (Schmid 2008, 6–7). What is implied here becomes particularly clear in Bolinger (1980, 79), who illustrates the difference between a quality, that may come and go, and an objectification by means of a noun:

If we are disappointed at Jane's lack of appreciation we can call her *ungrateful*, or solidify it a step further and call her *an ungrateful person*. But if we call her an *ingrate* we put the brand on her: the noun implies that the world puts people like this in a class by themselves.

For compounds, Motsch (1983, 107–108) notes that the meaning of German *Schlafzimmer*, 'sleeping room, bedroom', can only be paraphrased correctly by assigning it an unspecified temporal relation.

Thus it can denote 'a room intended to sleep in' in a general senseeven if nobody is sleeping there at the moment, but not 'the room I will sleep in today'. This implies that a temporally instable condition would not be lexicalized in a compound, but rather rendered syntactically. Wunderlich (1987, 94-95) also deals with temporal and spatial stability and proposes that one reason verbs are impossible as compound heads may be found here. He argues that nouns and also adjectives denote temporally and spatially relatively stable objects or properties, which can adequately be modified by means of composition. Verbs, in contrast, denote instable, changing events or states, which consist of a combination of several elements involved. An attempt to modify a verbal head cannot be successful since it is not possible to determine when, i.e. at which point in time and place, this modification should take place and which of the diverse classes of things involved should be affected. This statement, which remains very vague, as he admits, exhibits some parallels with an early comment made in Grimm (1877). Referring to German, Grimm (1877, 573) states that the combination of a noun and a verb in a compound is not allowed, and the reason for this restriction is to be found in the natural characteristics of the verb:

Sein ganzes wesen ist thätigkeit, entgegengesetzt der ruhe des nomens. Bei dem nomen soll eben die composition bleibende zustände im ausdruck feßeln. Das verbum, nach zeit und modus regsam und bewegt, übt einen viel zu manigfaltigen einfluß auf das nomen aus, als daß er nicht durch zusammensetzungen sollte gehemmt werden. (Grimm 1877, 577)

Thus, a noun expresses persistent, unchanging states of affairs and therefore radically opposes the active nature inherent in verbs. The verbal elements in such compounds would influence the nominal constituent in too manifold ways, which is why the active power of verbs should not be constrained by means of a composition.

In contrast to the actual composition of verbs, conversion from nominal bases is possible, as we have seen in chapter 2. Eschenlohr (1999, 233) quotes Neef (1997, 4), who deals with noun  $\rightarrow$  verb conversions in German and argues that compound nouns cannot freely be converted into verbs, since they must obey a conceptual principle. This principle states that "verbs based on compounds [...] are only possible if the related nouns are conceived as simple nouns (which means that they are lexicalized)" (Neef 1997, 4). Thus, he suggests that only such compound nouns which are cognitively processed as a single unit, i.e. a homogeneous concept, are proper conversion bases for verbs. Eschenlohr, however, criticizes Neef's argument as suffering from shortcomings in several points. First, it is a characteristic of compounds in general that they are conceptualized as cognitive units. Secondly, if this criterion was valid, lexicalized compounds would be expected to be as good candidates for conversion as simple lexemes. This is clearly not the case and it also seems impossible to predict—even among highly lexicalized compounds—which of them can be converted into a verb. Finally, such a conceptual principle cannot explain why English compounds are much easier to verbalize than is the case in German: *to microware* vs. German *\*mikrowellen, to bandcuff* vs. German *\*handschellen* (Eschenlohr 1999, 233–234).

Having discussed diverse aspects of hypostatization, the impression could arise that this phenomenon is the result of a highly complex process. However, this cognitive process would not be so ubiquitous if it were to no advantage. The function of hypostatization is indeed to reduce complexity and to encompass experiences within graspable units. The human cognitive system does not process stimuli that obey one of the general gestalt principles like similarity, contiguity, continuity, etc., individually. The letter H, for example, is not perceived as consisting of three individual lines, but rather as a holistic constellation. The same can be assumed to happen in the combination of morphemes, since it seems to be more efficient to process conceptual units cognitively than as individual components (Schmid 2005, 83).

However, and very interestingly, the effects of hypostatization can already be recognized at very early stages in the establishment of novel lexemes (Schmid 2008, 1). This means that the effects of hypostatization are not only present in established lexemes, but in all content words, no matter whether they are familiar or used for the first time. Novel lexemes, which are not yet entrenched, obviously are not stored in the mental lexicon (Schmid 2008, 27). However, Schmid (2008, 29) argues that hypostatization, or at least a hint of it, is present in novel compounds and even nonce-formations. The fact that the use of a nonce-compound suggests the existence of a corresponding class of referents becomes clear in the ironic or humorous tone that often accompanies such formations.

As has been mentioned in 3.1.1, from a structural point of view, lexicalization can be found to exist from the very beginning. Ryder (1994) has shown that language users, when confronted with novel N+N compounds, try to find plausible reasons to justify the existence of the combination. The stimulus compound *bean-garden*, for example, was analysed as 'a garden that contains *only* beans' [emphasis added] or 'a garden of beans' adding the remark 'one wonders why' (Ryder 1994, 286–287). This shows that many of the participants considered why *bean* and *garden* should be combined in a compound (Schmid 2011a, 233). This expectation of relevance is, in turn, the result of hypostatization, i.e. the assumption that a compound denotes a single, holistic piece of experience (Schmid 2011a, 230). This "holistic, gestalt-like nature of compounds, no matter whether established or novel, triggers the search for 'internal' relevance" (Schmid 2011a, 231).

From what has been said so far, it can be stated that from a structural point of view, each lexeme starts out as a nonce-formation, which is highly context-dependent. With ongoing lexicalization, the meaning can no longer be fully derived from the constituents. In this context, Hohenhaus (1998; 2006) points to the 'non-lexicalizability' of certain new formations. He finds that not all lexemes have the same potential to be lexicalized and gives examples like highly context-dependent words (Downing's 1977 'deictic compounds'), lexemes which violate certain word-formation principles, e.g. semantic restrictions (e.g. *to \*unmurder*), dummy compounds with a semantically empty constituent (*-thing*), etc. (Hohenhaus 1998, 244–257). From a cognitive perspective, a novel compound suggests the existence of a single class of referents and presupposes certain relevance in order to further develop into a fully entrenched concept. This notion of 'relevance' will be addressed in the following.

## 3.2 Combining concepts: Complex lexemes, the Relevance Principle and the concept of 'newsworthiness'

In the preceding chapter it was already indicated that the combination of lexemes and the related cognitive concepts respectively is not completely unrestricted. To begin with, the question of why we combine concepts must be addressed. Wisniewski (1997, 168) lists three different aims of conceptual combination, the first of which is "to designate significantly new categories: ones that have important, enduring characteristics that distinguish them from similar categories". This statement contains two crucial aspects, first, the need for stable, lasting characteristics, which at the same time must have an 'important' effect on how we conceive of this category. He gives seafood sausage as an example and states that this combination denotes a category that substantially differs from other kinds of sausage in a variety of aspects (e.g. taste, composition, etc.). The second reason why speakers create novel combinations is that they "convey information in a concise and efficient way" (Wisniewski 1997, 168). Even though a compound does not explicitly encode the exact relation between the constituents, the meaning can generally be understood without any difficulty. The last function of combinations is that of anaphora, in that they may be used "to refer back to a previous referent in a discourse context" (Wisniewski 1997, 168). This function is purely deictical 38 and of less interest for the purposes of this book.

The first aspect mentioned above leads to a fundamental principle of language, which is dealt with under the headings of 'relevance', 'newsworthiness' or 'nameworthiness'. These terms are quite vague and have been used in a variety of contexts. In this book, the principle is used as it is defined in Downing (1977) and Zimmer (1981), who have carried out analyses of novel noun + noun compounds. The key idea is that of "classificatory relevance" (Zimmer 1981, 249; Downing 1977, 829), which essentially means that "[a]nything at all can be described, but only relevant categories are given names"

<sup>38</sup> For further reading on this 'textual function', refer to Dederding (1983) and Lipka (1987).

(Zimmer 1981, 249). Thus, only relationships which are perceived to be significant for classification are regarded as nameworthy enough to be encoded in a compound (Downing 1977, 823). To give one of Zimmer's (1981, 248) examples, a cloud shaped like a kangaroo might be described somewhat oddly as a kangaroo cloud. Since it does not describe a habitual or generic relationship, such a compound would probably not become lexicalized. However, as he further argues, in a culture where such accidental resemblances are important in that, for example, marsupial-like objects foretell future prosperity, a kangarooshaped cloud may well be regarded as a relevant category and thus newsworthy enough to justify the compound kangaroo cloud (Zimmer 1981, 248-249). To give another example, a cat that someone notices sitting in a tree would not be referred to as a tree cat in our culture, because this relation is not relevant to our categorization of cats and is thus not a classificatory feature (Zimmer 1981, 249). As a general rule it can be stated that "[t]he more name-worthy the [...] category defined by the compound, the wider the temporal and spatial range of speech situations within which the compound will be useful and interpretable" (Downing 1977, 841). As a consequence, a compound is more likely to be created for a newsworthy, i.e. relevant, situation or thing denoting a nameworthy category than for an irrelevant one. Downing (1977, 823) remarks that the existence of deictic compounds like her well-known example apple-juice seat seem to contradict this theory, because they obviously do not imply a nameworthy category. However, as she concludes, they at least represent a nameworthy entity at the moment they are used. This is enough to justify their usage in a certain context; however, the lexicalization potential of such nonce-formations, which can be used only on a temporary basis in the presence of a context, is quite low (Downing 1977, 822).

Habitual or generic relations between the constituents seem to lend themselves particularly to compound formation. As Zimmer (1981, 248) remarks, such a relation is characteristic for a large number of compounds, but does not serve as the ultimate criterion for distinguishing possible and impossible compounds. However, the tendency of adding the aspect of habituality or permanence to the interpretation of novel compounds is very strong indeed, since an event which is unlikely to recur would not describe a nameworthy

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category (Schmid 2011a, 239). This preference for 'permanence of the relationship' (Downing 1977, 834) also was verified by several tests carried out by Downing (1977). The results of her study showed that

novel compounds based on relationships perceived to be habitual or generic were much more common than those based on temporary or fortuitous relationships. Of the hundreds of interpretations proposed on the CFI [context-free interpretation] task, none could be characterized as being based on an unambiguously fortuitous or temporary relationship. (Downing 1977, 834)

A *helicopter man*, for instance, only makes sense as a compound if it denotes a person who flies helicopters regularly (Schmid 2011a, 235). Under certain circumstances, however, such a compound can also be used to refer to a particular person at a particular time, namely, in order to distinguish this man referentially from another one nearby (Schmid 2011a, 239). If the concept is newsworthy enough, e.g. in that it has the status of some social institution, it may also become entrenched. A *backdoor*, for example, is crucially different from a *front-door* (in shape, the kind of people entering it, etc.), and this distinctness and the awareness of language users about these two different concepts motivates their newsworthiness (Pawley 1986, 105).

From what has been said it becomes clear that the way we conceptualize situations or objects and classify categories is highly dependent on the language community and the culture we live in. What is considered relevant can differ from one culture to another. Thus, if a society is in need of a name for a category, it can be called a nameworthy category. A *snowman* would certainly not be nameworthy in African cultures, but is so in ours (Lipka, Handl and Falkner 2004, 10). As Motsch (1983, 101–103) maintains, natural languages must be able to express all relevant thoughts of the language community and enable us to store and transfer information in an efficient way. A principle of relevance (Prinzip der Relevanz) determines and controls the formation of words used to name important concepts. 'Important' is a vague term and according to Motsch (1983, 103) depends on the historical and social conditions of the respective speech community. Thus, at the same time, it accounts for the fact that the vocabulary of a language is in constant flux. Highly interconnected with this principle of relevance are the principles of clarity and conciseness. Compounding, as Motsch (1983, 103) argues, supports these two principles, since it combines names of already familiar concepts and therefore represents a new concept with the help of already existing means <sup>39</sup>. The search for relevance also becomes obvious in the example *bean garden* given in chapter 3.1.3, where participants added certain features of meaning to arrive at a satisfying paraphrase. This search for relevance is based on the principles of gestalt perception mentioned above as well, which shows that the need of a concept and the condition of relevance are highly interconnected (Schmid 2011a, 230).

The relevance principle, which constitutes an important cognitive constraint when it comes to conceptual combination (Schmid 2011a, 228), is also closely connected with the idea of diagnosticity. This idea is part of Costello and Keane's (1997, 2000, 2005) 'Constraint Theory of Concept Combination', which they apply to novel noun + noun combinations. Central to their theory are three pragmatic constraints, which reject certain interpretations of novel compounds while promoting others as acceptable: diagnosticity, informativeness, and plausibility (Costello and Keane 1997, 138). These constraints not only influence the way novel compounds are understood, but also "guide the process of concept combination" (Costello and Keane 2000, 307). Diagnosticity constrains conceptual combination in that the constituents combined "highlight salient and 'telling' aspects for attention" (Schmid 2011a, 223). In Costello and Keane's (1997, 138) terms, "a diagnostic predicate is one that strongly distinguishes the concept from other known, related concepts". It can be assumed that

<sup>39</sup> The processes involved when language users "deal with situations forcing them to combine familiar but previously unrelated concepts in one novel concept" (Schmid 2011a, 219) have been analysed in detail within Conceptual Blending Theory. This highly interesting branch of cognitive linguistics can offer valuable insights, especially when figurative language, e.g. metaphor, is involved. For the analysis of verbal pseudo-compounds (that in fact are not compounded, but derived from nominal compounds, which means that the nominal input would need to be converted into a verbal blend at some point), however, it has not proven fruitful enough to be included in this book. For further reading please consult Fauconnier (1994), Fauconnier (1997), Fauconnier (2007), Fauconnier and Turner (2002), Turner (2007), Turner and Fauconnier (1995).

the two constituents of the compound are the ones that best identify the intended context, for otherwise the speaker would have used different words (Costello and Keane 2005, 210). For example, when referring to a man wearing an angel's costume and normal trousers underneath, the compound noun angelman would be more diagnostic than trousersman, since we usually expect men to wear trousers, but certainly not angel costumes. Thus, also with regard to informativeness, a person dressed up like an angel has a higher newsworthiness than a person wearing trousers (Schmid 2011a, 223). The reason is that this constraint essentially requires the communication of something new (Costello and Keane 1997, 139). Redundant information as in \*head hat ('a hat worn on the head'), where no new information is provided by head, are predicted to be impossible since both constituents of a compound are supposed to be both necessary and sufficient for the interpretation (Costello and Keane 2000, 310). The last constraint is that of plausibility, which requires that a novel compound describe a referent the hearer is familiar with to a certain extent, since otherwise the speaker might have described the concept in more detail rather than using a compound (Costello and Keane 2000, 309). Thus in the case of noun + noun compounds, the object described has to be plausible, meaning that it could possibly exist (Costello and Keane 1997, 139). A shovel bird could be plausibly interpreted as 'a bird with a flat beak it uses to dig food', since it is consistent with what actually exists, but less as 'a bird that uses a shovel to dig for food' (Costello and Keane 2000, 309).

Having discussed conceptual combination and its constraints in some detail here, the next chapter will deal with a related aspect, namely, the question of how complex verbs are processed. What is particularly interesting for the purposes of this study is the role of the constituents.

#### 3.3 Cognitive processing of complex verbs

The goal of this chapter is to investigate more thoroughly the role of the constituent elements of a compound. What happens in a speaker's mind when processing a compound lexeme, what role do the constituents play in assigning meaning to the whole and can certain constituents influence the acceptability of novel words?

#### 3.3.1 Conceptual decomposition

As has already been mentioned above (chapter 3.1), the meaning of compounds cannot always sufficiently be retrieved from the constituents' meaning, i.e. the compound meaning is non-compositional in general. Costello and Keane (2005, 203) argue that pet fish is conventionally understood as 'a small, brightly coloured fish kept in a glass bowl'. When asked about the meanings of the constituents pet and fish, however, language users do not come up with the properties 'brightly coloured' or 'glass bowl'. This non-compositionality of many compounds has also been demonstrated by Ungerer and Schmid (1998, 77), who carried out an empirical study on noun + noun compounds in which participants were asked to list attributes for the compound lexemes, on the one hand, and for the constituent concepts, on the other. The results showed that with increasing lexicalization the dependency on the constituent concepts decreases<sup>40</sup>. However, as has been pointed out by Langacker (1987a, 449), in many cases there is at least a partial compositionality, e.g. due to some regularity in the meaning of compounds with regard to the meaning of the constituents that speakers to some extent rely on.

De Almeida and Libben (2002) also investigated the topic of compound decomposition, in particular the role that constituents of multimorphemic lexemes play in compound recognition, and attempted to shed light on the question of "whether recognition of existing English compounds is dependent on the recognition of their constituent morphemes" (2002, 97). The subject of their investigation were existing noun + noun compounds to which they applied a socalled 'constituent disruption paradigm'. In this context, single characters of constituents of variable length (being part of com-

<sup>40</sup> Also refer to Libben (1998) and Libben et al. (2003) on the role of transparency in the processing of compound words.

pounds of fixed length) were replaced, e.g. drive  $\rightarrow$  dr#ve, way  $\rightarrow$  w#y. Subsequently, recognition of the individual constituents and the compound respectively was tested. The aim was to clarify whether prelexical decomposition into constituent morphemes takes place in the processing of compounds. The results show that disruption in the constituent lexemes interferes with recognition, and this interference is stronger for three-character lexemes than for five-character lexemes. In a second test, where these constituents were combined into an eight-character compound, constituent disruption did not demonstrate an effect with regard to naming accuracy or latency. These results indicate that pre-lexical recognition of the constituents is not necessarily a precondition for compound recognition. The authors note that, in contrast, the processing of novel compounds that are encountered for the first time is indeed dependent on morphological composition. Thus, they conclude that "the findings that prelexical activation helps but is not necessary seem most compatible with a dual process approach that posits both prelexical morphological decomposition with a generally faster whole-word recognition procedure" (De Almeida and Libben 2002, 113).

In general, it can be summarized that due to the sensitivity of compounds to semantic drifts, the correlation of semantic transparency and morphological decomposition is very high in English. Since compounding is a highly productive process in English, language users are likely to encounter new combinations frequently (at least with regard to nominal compounds). Such novel combination, e.g. Libben's example \**slushfoam*, can only be interpreted through the constituents' meanings (Libben 1998, 32–34).

The question that arises here is what happens when a language user encounters a novel combination that at the same time is linked to existing lexemes, i.e. a lexeme that is novel in so far as the combination of constituents is new, but one or both constituents already exist in other combinations and thus can be said to show word-family effects.

#### 3.3.2 Word-family effects

In his thesis on English verbal compounds, Cho (2002, 81-128) notes that many combinations can be characterized by compositional schemas (Kompositions-schemata) which have developed throughout the history of the English language. As an example he gives verbs ending in -hop, which have become productive in our century, e.g. barhop, islandhop, tablehop, etc. Such a compositional pattern is present, according to Cho (2002, 82), as soon as at least two instances can be found in the language. In this context, both the first and the second constituent of a compound can be part of this pattern, which will be referred to as 'word-family effects'. The adjective cold as the first constituent in verbal pseudo-compounds is very productive and can be found in to coldstart, to cold call or to coldweld (Cho 2002, 111). Interestingly, the meaning of *cold* in these combinations differs from its general meaning as an adjective. As a first constituent it often denotes an 'untypical or nonstandard condition or behaviour' and thus not only formally but also semantically connects the different verbs in which it surfaces (Cho 2002, 111). Two crucial aspects obviously come into play here: lexicalization (chapter 3.1) on the one hand, but also relevance of meaning (chapter 3.2), since the adjective cold as a first constituent in our example describes a certain deviation from usual methods and procedures (Cho 2002, 112). The formal and semantic relationships within these compositional schemas form networks of compounds which can be quite dense at times. Different lexemes support and strengthen each other and constitute the bases for further formations (Cho 2002, 112). This means that existing combinations are a rich source for new lexemes, which can have recourse to something already familiar to the language user. This phenomenon is not restricted to adjectives as first constituents, Cho (2002, 113) explains. In to bellyache, for example, the noun belly is connected to further lexemes like to bellydance or to bellyflop. In this context, he (2002, 82-83) briefly points out that not all homonymous constituents historically go back to the same root (e.g. to spitball vs. to spit-roast), which is why a certain caution is required when assuming a compositional pattern behind two lexemes.

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A similar aspect has already been mentioned above in chapter 2.1.3, where combinations like *to chain-drink* were said to have been coined in analogy to existing lexemes, in this case *to chain-smoke*. Cho (2002, 125) differentiates between compositional schemas and analogous formations in holding that analogies are influenced by other factors like lexico-semantic relations between a constituent of the compound and related expressions. In the above example the relationship between *drink* and *smoke* could be said to be that of membership to the same lexical field 'vices/addictions'. The same holds for the example *to blue-pencil/red-pencil*, which was also mentioned above. The adjectives *blue* and *red* belong to the same lexical field of 'colour terms' (Cho 2002, 127). Cho (2002, 126–127) introduces yet another source of analogy: relations of antonymy between adjectival first constituents. Pairs like *to drynurse/wetnurse* or *to soft-boil/bardboil* are of this kind<sup>41</sup>.

Within a discussion of novel combinations the question of particular interest concerns the effects on compound processing. In order to avoid confusion of terms, from now on these effects will be referred to as 'word-family effects' (WFE), comprising all the aspects discussed above that include more specialized analogous formations. It has been shown in various experiments that "[t]he ease with which novel forms are processed [...] correlates with the number of types of lexemes that include the constituents as components, i.e. the size of their morphological families" (Schmid 2008, 12). This means that the more familiar a speaker or hearer is with the constituents of a novel compound, the easier it is to form a (pseudo-)concept. A complex lexeme with highly frequent constituents will therefore be processed faster than a lexeme with rarely used constituents. To illustrate this with an example, due to the extraordinary frequency of the prefixoid over-, meaning 'excessively', which can be found in overbill, over-check, etc., it is easy to interpret a novel formation, since the word-family effects that are at work here facilitate understanding (Schmid 2008, 12). It has already been noticed by Aitchison (1987, 153) that new words rarely are completely creative coinings; most novel lexemes are "additions to existing words or recombinations of

<sup>41</sup> Also see Brömser (1985, 101) on related aspects.

their components". Thus, the first crucial aspect which influences the comprehension of new lexemes is the existence of word-family effects, which facilitates conceptual processing and serves as a basis for further formations.

The degree of familiarity with one or both constituents of a compound depends on two factors, the size of the word-family, i.e. the number of existing lexemes sharing the same constituent, and the frequency of the constituent, i.e. the number of times a hearer encounters the constituent in actual language usage. Studies have in fact provided evidence that the first constituent has a somewhat higher impact on compound recognition than the second one (Schmid 2008, 12–13). This can possibly be explained by the fact that "particularly the beginnings, and to a lesser extent the ends of words are prominent in storage" (Aitchison 1987, 121). A further factor, which has an effect on how we interpret novel compounds, is the semantic relation that holds between the constituents (Schmid 2008, 12). In general it can be stated that compounds denote contrasts that exist between subcategories in order to distinguish the different members of a category. In a noun like *teapot* the modifier is used to differentiate it from other types of pots, e.g. a coffeepot (Gagné and Spalding 2006a, 146). Gagné and Spalding (2006a, 150-155) claim that-at least with regard to nominal compounds-a particular semantic relation is more likely to be applied in the interpretation of a novel formation when it has been encountered frequently in previous combinations. They call this knowledge about how a particular modifier has been used in other combinations its 'relational distribution'. This relational distribution influences which semantic relations will be considered by a language user in the process of conceptual combination. Consequently, novel combinations that realize a semantic relation which has been used frequently with the modifier in question are easier to process than unusual relationships (Gagné and Spalding 2006a, 151-153)<sup>42</sup>. To briefly illustrate this with an example, compound nouns with the modifier mountain typically realize a locative relation, e.g. mountain goat or mountain stream. A novel combination can

<sup>42</sup> Also see Murphy (2006), who argues that novel words which follow productive patterns are more easily comprehended and generated than truly creative ones.

therefore probably be interpreted accordingly, e.g. a speaker uses his knowledge about the relational distribution and interprets *mountain fish* as 'fish found in the mountains' (Wisniewski 1997, 172).

From what has been said thus far it might seem somewhat difficult to bring together the findings of 3.3.1 and this chapter. On the one hand, it was shown in chapter 3.3.1 that conceptual decomposition is not absolutely necessary in the processing of novel words, and that many lexicalized compounds are only partially compositional, if at all. On the other hand, it has also been shown that there is strong evidence for the fact that word-family effects crucially facilitate the interpretation of new compounds. The aspects mentioned here will be taken up and related in chapter 4.2, where I would like to present a model which is applicable to verbal compounds and pseudocompounds.

#### 3.4 Profiling and the Figure/Ground-distinction

The preceding sections of this chapter have essentially dealt with the processes involved in the creation of new words. The first question concerned the development of novel lexemes on their way to entrenchment. Subsequently, the focus was on the conceptual combination of individual concepts and the role of newsworthiness. Additionally, the idea of conceptual decomposition was discussed, particularly the question of whether certain constellations of constituents facilitate the processing of novel formations. It was shown that novel compounds, in order to become established, must enable meaning assignment, which is influenced by the existence of related verbal compounds. In the following I would like to draw attention to a much wider, general field of research, namely, a fundamental principle of cognition that embeds all cognitively oriented linguistic analysis.

#### 3.4.1 Figure and Ground

Comparing the sentence The bike is near the house to the somewhat odd counterpart ? The house is near the bike reveals a difference in meaning that according to Talmy (1978, 625) can be ascribed to different underlying semantic roles, which he calls 'Figure' and 'Ground'. These terms are derived from Gestalt psychology and denote cognitive-semantic categories which identify a reference point (the Ground) and an object possessing a certain variability with regard to that reference point (the Figure) (Talmy 1978, 627-630). What is important for the identification of Figure and Ground is a process of comparison that is at work whenever we cognitively process and structure a situation. Such an act of comparison helps to detect any discrepancy between events and takes place, for instance, when we perceive a light spot in the dark or discover a spelling error (Langacker 1987a, 99-101). In the example given above, bike functions as the Figure in the first sentence, but as the Ground in the second (Talmy 1978, 629). Talmy (2000, 312) offers a general definition of these notions by describing the Figure as "a moving or conceptually movable entity whose path, site, or orientation is conceived as a variable, the particular value of which is the relevant issue" and the Ground as "a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure's path, site, or orientation is characterized".

This fundamental distinction results from a much broader phenomenon, Langacker (1987a, 117) argues: our ability to construe one and the same situation in different ways. The notion of construal, thus, is one of the most basic ones in the field of cognitive semantics, which consequently defines meaning as "a function of both conceptual 'content' and how that content is construed" (Langacker 1998, 4). This also means that expressions with the same conceptual content can differ semantically due to a difference in perspective (Langacker 1993, 447). To give an example from Langacker (1987b, 56), a speaker can describe a certain situation, e.g. stars in the night sky, in different ways: as a *constellation*, a *cluster of stars*, *specks of light*, etc. Thus, a speaker has at his disposal many different and semantically distinct possibilities for expressing his particular construal of the scene. This is what Langacker (1987b, 56) calls 'imagery', which is one of the most basic cognitive phenomena in general, and which, as a matter of obvious fact, surfaces in language as well.

The difference between the two sentences given at the beginning of this chapter can be said to result from contrasting images structuring the situation or, to put it differently, from a difference of perspective, i.e. "the position from which a scene is viewed, with consequences for the relative prominence of its participants" (Langacker 1987a, 117). The Figure is generally perceived as standing out from what constitutes the Ground and has a certain prominence with regard to the remainder, which functions as the setting of the scene (Langacker 1987a, 120). This idea of prominence is somewhat vague, since the term essentially describes various kinds of prominence.

The first kind of prominence can be explained by the notion of 'salience', which denotes the cognitive prominence inherent to some kinds of entities (Langacker 1998, 8). Certain classes of elements are intrinsically more prominent than others: animate ones (especially human beings) are more striking than inanimate ones, physical entities are also, with respect to abstract ones, or visual experiences with respect to invisible objects (Langacker 1998, 8). To illustrate this with an example, a dog running over a field will more likely attract attention than the field itself. The animate, moving dog has a high degree of salience and is therefore more likely to attract our attention than the inanimate, immobile non-salient field (Schmid 2007, 120)<sup>43</sup>.

Another kind of prominence has been labelled 'profiling' by Langacker and will be essential for the ongoing discussion. He (1987a, 183) argues that every expression has a certain scope, which he calls the 'base', and a particular substructure, i.e. a designated element with some special prominence, which is the so-called 'profile'. In the conceptualization evoked by the expression, the profile denotes the conceptual referent (Langacker 1993, 449). Although it is the profile

<sup>43</sup> In addition to this inherent salience (also called 'ontological salience') there is what can be called 'cognitive salience'. This term refers to a temporary state which holds when a concept has been activated in a speech event and thus reaches this state of saliency once it has entered the speaker's current memory (Schmid 2007, 120).

that stands out against the base, only the combination of the two defines the semantic value of the expression (Langacker 1987a, 183). Thus, the profiled concepts are not processed in isolation, but can only be understood in relation to presupposed background knowledge (Börger 2007, 118). This profile/base distinction constitutes one dimension of imagery (Langacker 1987b, 56) and is clearly related to the Figure/Ground distinction. The prominence inherent to the profile at the same time entails its status as the Figure (Langacker 1987a, 187). In general, therefore, our mind can be said to be able to single out or profile some parts of an expression as a prominent Figure, which stands out against the Ground (Schmid 2000, 364; Langacker 1987a, 183). However, there are cases where these two notions do not coincide and it must therefore be noticed that the idea of Figure is still broader than that of profiling (Langacker 1987a, 187). As a concluding example, consider the sentence Look at that book on the table. Obviously, the book is the most salient entity and calls for attention and therefore functions as the Figure, whereas the table only has secondary prominence and serves as the Ground, i.e. the reference point for locating the book (Schmid 2007, 127–128). Perspectivizing may also take place within a single lexeme. This becomes obvious if we consider that one and the same person can be described as a *woman*, a *mother*, a *daughter*, a *doctor*, etc., depending on which aspects the speaker wants to profile (Schmid 1999, 218-219). As trivial as this may seem, it illustrates one of the most fundamental characteristics of cognitive processing, which plays a crucial role in the solution of many linguistic problems.

#### 3.4.2 Three types of profiling

From the point of view of the language producer, the term 'profiling' denotes the idea that linguistic structures provide information about how speakers conceptualize a certain situation with regard to the relative prominence of the entities involved (Schmid 2011b, 104). As stated in the preceding chapter, the underlying cognitive principle is the distinction of Figure and Ground, which constitutes a fundamen-

tal perceptual principle and manifests itself in linguistic structures (Schmid 2011b, 104).

With regard to word-formation three different types of profiling can be distinguished according to Schmid (2011b, 105). The first is called 'conceptual profiling' and describes the idea that the mere coding of a concept by means of morphemes accounts for its profiled status. The morphemes of the complex lexeme function as the Figure, while the mental representation of the whole complex situation as such, i.e. the underlying idea or scene of a situation, functions as the Ground. To illustrate this with an example, the noun *daydream* profiles the semantic roles of Time (*day*) and Experienced (*dream*), to use Fillmore's terminology<sup>44</sup>. The profiled roles stand out against the background of the whole scenario of daydreaming (the Ground), also called the frame. A speaker can also profile other aspects of the same scenario, e.g. in the lexeme *daydreamer* the Time (*day*) and the Experiencer (*dreamer*) is profiled, while the Experienced is relegated to the background (Schmid 2011b, 105–106).

The second type of profiling—'internal Figure-Ground profiling'—builds on the concept of topicalisation (Kastovsky 1982, 192) and concerns the order of the morphemes in a complex lexeme (Schmid 2011b, 106). Accordingly, the structural distinction between modifier and head can account for the difference in informational distribution, since the head generally contains familiar information and thus serves as the so-called 'topic', whereas the modifier stresses new information and serves as the 'comment'. Applied to the concept of profiling this means that attention is directed to the modifier, which functions as the more prominent Figure. In the above example *daydream* (noun), the concept DAY is being profiled against the background of what we expect of the concept DREAM. The underlying motivation is to stress the striking fact that the dream is being dreamt in broad daylight rather than at night (Schmid 2011b, 106–107).

Finally, the third type of profiling, called 'concept-type profiling', concerns the nature of the concept expressed by the head morpheme. The lexical class of the head influences the lexeme as a whole and consequently its conceptualization as well. In Langacker's Cognitive

<sup>44</sup> Fillmore's approach will be discussed in detail in chapter 4.1.4.

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Grammar, word classes are regarded as the result of different profiling processes of cognitive units. The difference between nouns and verbs, for instance, is assumed to stem from a difference in profiling (Schmid 2011b, 107). This last type of profiling deserves more detailed discussion and therefore will be presented in some length in the following section.

#### 3.4.3 Nouns versus verbs

One major issue in the discussion of word classes is their semantic definability. Although the general consensus of many linguists (e.g. Jackendoff 1994, 68-69) denies the possibility of a semantic definition of basic grammatical classes (like nouns, verbs, adjectives, etc.) on the grounds that not all members of a word class share some consistent meaning (e.g. not all nouns denote physical objects and not all verbs describe actions), Langacker (1998, 17) holds that, on the contrary, this is possible indeed. The arguments generally put forward by opponents rest, according to Langacker (2005, 123), on two fallacies, the first of which is the assumption that it is the objective properties of the designated entity that determine the meaning of a noun or verb, rather than taking into account that the way of conceptualizing might also influence linguistic categorization. Moreover, he criticizes the impression of some scholars that only conceptual archetypes like object or action are considered for a semantic definition. In order to define all instances of a word class, however, this level of characterization is inappropriate as it does not cover peripheral members. Langacker (1998, 18) therefore argues that the common semantic ground of nouns and verbs, for instance, must be captured by more abstract, schematic notions than 'physical object' or 'action', which only describe prototypical members of these word classes, but are too specific to comprise all existing ones. The approach he offers builds on a more general cognitive level, namely, our ability to construe situations in alternate ways. Langacker (1990, 60) suggests an abstract noun/verb schema, which is realized by all nouns or verbs respectively. Such a schema can be understood as "an abstract template representing the commonality of the structures it

categorizes" (Langacker 1987b, 54). It is not to be equated with a list of attributes, but constitutes a concept on its own right, which however is less specific than its instantiations (Langacker 1987b, 54). All members of the noun class<sup>45</sup>, for example, share some fundamental semantic properties, which can be described, according to Langacker (1987a, 189), as designating a 'thing', whereas a verb can be said to designate a 'process'. Processes are part of the group of so-called relational predications, which is also represented by atemporal relations, corresponding to the group of adjectives, adverbs, and prepositions (Langacker 1987a, 214), but also infinitives and participles (Langacker 1987b, 72). Here we have come full circle to the third type of profiling (chapter 3.4.2), according to which differences in profiling can surface in different word classes. If we say that nouns profile things and verbs profile processes (Langacker 2005, 124), the two terms are to be understood in a "maximally general way" (Langacker 2005, 125). In this context, a "thing is defined abstractly as any product of grouping and reification, both very basic cognitive abilities" (Langacker 2005, 124). This grouping unconsciously takes place on the basis of common gestalt principles like contiguity and similarity, even if a speaker is not aware of the constitutive elements, e.g. a *desk* is conceptualized as a whole even though it consists of a table leaf and four legs (Langacker 2005, 124-125).

Verbs differ from nouns in that they profile different parts of the same conceptual content. The verb *complain* and the noun *complainer*, for example, basically evoke the same intrinsic content, namely, that of some person engaging in some activity. Semantically, however, they contrast in that the noun profiles the actor, whereas the verb profiles the activity on this common base (Langacker 1993, 450). Therefore, as Langacker (1993, 459) further argues, the construal of a situation is at least as important as conceptual content, since every lexical item imposes a certain construal on the content it evokes. Adjectives, to include the third big group of lexical classes, also profile some sort of relationship. However, it concerns one that is regarded in a "holistic" manner, which means that, contrary to verbs,

<sup>45</sup> Also including pronouns, determiners and noun phrases (Langacker 1993, 450).

the evolution of this relationship through time is not focused on (Langacker 1998, 19).

Langacker (e.g. 1987a, 1987b, 2005) schematically describes these differences by means of two different modes of mental scanning processes, which essentially provide the natural basis for the contrast between nominal, processual and atemporal relations or nouns, verbs and adjectives respectively (Langacker 1987b, 74). The two modes of processing that he distinguishes serve to structure complex scenes in an experientially quite distinct manner and are called 'summary scanning' and 'sequential scanning' (Langacker 1987a, 248). The former is characterized by the fact that the different facets of a complex situation are not examined in a successive, but rather in a cumulative manner (Langacker 1987b, 72). Summary scanning can thus be described as being additive, with all component states being conceived as "coexistent and simultaneously available" (Langacker 1987a, 145). The conceptual components which are part of the complex scene are coactivated and processed in parallel and thus form a coherent gestalt (Langacker 1987a, 248). According to Langacker (1987a, 248), "[t]his is the mode of processing characteristic of things and atemporal relations". By contrast, sequential scanning describes a mode of processing whereby the different component states are not conceived as simultaneously available. Rather, it implies a successive transformation of some scene into another one, which means that "[t]he component states are processed in series rather than in parallel" (Langacker 1987a, 248). Sequential scanning is at work when it comes to processes (Langacker 1987a, 248) since the way of conceptualizing the situation is dynamic in that its content changes from one moment to the next (Langacker 1987b, 72). Langacker (1987a, 145) quite nicely compares summary scanning to the examination of a photograph, while sequential scanning resembles the watching of a video film.

To illustrate this with a linguistic example, let us look at the verb *explode* and the corresponding nominalization *explosion*. Both essentially describe the same event, which means that they share the conceptual content. However, as Langacker (1987b, 90) argues, they differ semantically because the underlying images that structure this content are not the same. The verb *explode* is processed on the basis

of sequential scanning, i.e. the profiled event is construed as a process. In contrast, the noun explosion portrays the event as an abstract region, since "[n]ominalizing a verb necessarily endows it with the conceptual properties characteristic of nouns" (Langacker 1987b, 90). Thus, the same scene is construed as a dynamic process in the verb, while the noun profiles the component states collectively as a thing (Langacker 1987a, 248-249). The same can be found in the contrast between the verb *fall* and its corresponding nominalization (Langacker 2005, 126-127). The verb is processed by scanning through the different stages in sequence, i.e. if an apple, for instance, falls from a tree, we see it in exactly one place at any one moment. Only one stage is focused on at any instant, since this corresponds to the natural way of apprehending events in real time. However, we are capable of viewing these separate temporal stages as related mental experiences, with each phase "developing organically out of its predecessor" (Langacker 2005, 126). When it comes to the nominalization, we construe the profiled event in a holistic manner, with all stages being available at the same time and forming a single gestalt. This happens, for example, when watching the flight of an object whose trajectory is then conceptualized as a shape (Langacker 2005, 126-127).

To sum up, we have seen that nouns and verbs differ conceptually, on the grounds that verbs profile processes, which employ a sequential mode of scanning that tracks their manifestation through time (Langacker 2005, 127). Nouns, in contrast, suggest a summary scanning and profile things. The cognitive effect that results from the use of nouns can be referred to as reification, as has already been indicated above (Schmid 2000, 365–366).

This chapter has provided the theoretical foundation for the cognitive-linguistic approach that is pursued in the present book. Based on this groundwork, the remainder of this study is concerned with the actual focus of the research question—verbal (pseudo-) compounds. This type of lexemes will be subjected to an in-depth analysis carried out in chapter 5. In order to embed this analysis in a proper methodological framework, the following chapter will present some suitable criteria which are, among other things, based on Lipka's multi-level approach to word-formation.

### 4 Analytical framework

The verbal compounds, which have been defined in this book as compound-like formations which function as verbs, require an explanation about why such lexemes never result from a genuine compounding process. To answer this question, we need to learn more about their structure. For this purpose, a systematic framework containing a set of predefined categories for analysing wordformation is essential in order to establish an initial approach to the material that will be examined here. An appropriate framework has been suggested by Lipka (1983) and will be presented in the following.

# 4.1 Criteria for classification based on Lipka's multi-level approach to word-formation

"Complex lexemes differ in a number of respects from simple lexemes. These differences can best be captured by a multi-level approach to word-formation that describes analysable and more or less motivated lexemes and their creation and interpretation" (Lipka 1983, 926). This statement suggests Lipka's approach is a promising framework for the forthcoming analysis of verbal compounds. The criteria defined in this chapter will therefore serve as a basis for the empirical analyses to be presented in chapters 5 and 6.

The criteria he offers are based on several works of his predecessors, among which he particularly names Marchand (1969), Kastovsky (1977) and Dressler (1979). They had already presented several levels for the analysis of compound lexemes, which however did not seem sufficient to Lipka (1983, 926). He (1983, 926) holds that "even more levels and distinctions have to be taken into account and that only an integrated approach can capture all aspects of complex lexical items". The multi-level approach he proposes therefore aims at capturing all aspects of word-formation (Lipka 1983, 928) and includes six levels of analysis, which will be discussed in the following sections.

#### 4.1.1 Analytic versus synthetic analysis

First of all, we need to distinguish between an analytic and a synthetic procedure of analysis. In the former, the point of departure is the complex lexeme, which has a certain structure, e.g. *theatregoer*. By paraphrasing the compound word, the underlying sentence or syntactic group becomes evident. The latter, synthetic procedure, is characteristic for generative treatments and works the other way round: it starts from a sentence (*Someone goes to the theatre*) and therefrom derives a reduced syntagma by adding semantic features like [+HABITUAL] (Lipka 1983, 926; also Lipka 1994, 5).

The upcoming dictionary and corpus analysis is largely analytic. Lexemes like *to lipread* or *to headhunt* have to be paraphrased in order to grasp the core of their meaning ('someone reads from someone else's lips'; 'someone (metaphorically) hunts (metonymically) someone else's head'). Through paraphrasing, not only the semantic relation between the constituents becomes evident, but also the metaphors, metonymies or highly specialized meanings, which may also be present as well. In the questionnaire study, which will be presented in chapter 6, the synthetic method will be at least partly applied. In the process of creating hypothetical lexemes, which are totally new and unrelated, it may sometimes turn out to be helpful to start with a sentence (*Someone tests something in the air*) and derive a potential compound (*to \*airtest*). The main focus will remain on the analytic method, however.

#### 4.1.2 Synchronic versus diachronic analysis

Another highly important aspect in a comprehensive analysis is the distinction between synchrony and diachrony. Since a "speaker has no historical memory" (Lipka 1983, 926), a verb like *to peddle* can be analysed in a twofold manner: Diachronically, it is a back-formation from the noun *pedlar/peddler*. From a synchronic point of view, however, a *peddler* is most naturally described as 'one who peddles' and therefore can be said to derive from the verb (also compare Marchand 1963b). Some aspects, like productivity, can nevertheless only be explained by taking into account the historical development (Lipka 1983, 926).

Opaque compounds like *daisy* or *gospel* are, from a diachronic point of view, compounds, since they have originally been formed from two free morphemes (OED, s.v. 'daisy, n' and 'gospel, n'; also Bradley 1968, 79). Synchronically speaking, however, they are no longer analysable as such and are treated as simple lexemes. Such cases have been excluded from my study from the beginning, as this book is only interested in verbal lexemes that obviously are compounded or at least seem to be. The verbs I am dealing with are both diachronically and synchronically (i.e. both with regard to their historical evolution and their content) derivations, even though they look like genuine compounds at first sight. Some authors claim to have found counterexamples of genuine composition, which in any case are only rare single cases-if they do exist at all. Verbs which have been formed by means of genuine composition are therefore not productive, and to find reasons for this is exactly the focus of this study.

#### 4.1.3 Morphological and semantic aspects

The levels of morphological shape and structure have already been postulated by Marchand (1969, 54–56). Accordingly, an analysis of complex lexemes has to take into account the constituent morphemes and their lexical classes, e.g. *craftsman* consists of noun + s +
noun (=morphological shape)<sup>46</sup>. The immediate constituents and their functions (determinant/determinatum) are defined on the level of morphological structure. Lipka (1983, 927; also 1994, 4–5) points to the necessity of adding a semantic component in order to arrive at an adequate and sufficient analysis. This necessity becomes obvious when we compare lexemes like *steamboat* and *girlfriend*, which have the same morphological shape (N+N), but differ semantically in the way the two constituents interact. The same can also be found, for example, in the suffix *-er*, the meaning of which differs in lexemes like *bak/er* (Agent), *blott/er* (Instrument) and *sleep/er* 'train with beds' (Adverbial of place) (Lipka 1983, 927).

Morphological shape and structure will, of course, be an important dimension in my analysis of verbal compounds. The lexemes to be dealt with will be classified according to their constituent morphemes, e.g. noun + verb, adjective + verb, etc. As we have seen, this level can only provide a rough categorization, since the differences within one class are huge.

Moreover, there is a considerable body of literature on the different types of compounds, including the distinction of coordinating (*singer-songwriter*) and subordinating compounds, the latter being further subdivided into endocentric (*apple juice*) and exocentric (*paleface*) ones<sup>47</sup>. I will not go into detail here, but the basic distinctions will as a matter of fact be borne in mind throughout the whole study.

<sup>46</sup> A short remark on the length of compounds: As Marchand (1960a) has pointed out, the English language only allows for compounds containing no more than three free morphemes, while longer combinations would surface as syntactic groups. On the formal side in general, several morphological constraints (e.g. no regular plural forms inside compounds) apply to the formation of compounds. These usually seem self-evident and are of little use for this book, but are interesting on closer inspection; also see Cunnings and Clahsen (2007).

<sup>47</sup> For more detailed reading on the different types of compounds refer to Hansen et al. (1985, 43–44) and Dressler (2006); For a discussion on co-ordinating compounds consult Neuß (1981), Arcodia et al. (2010) and Wälchli (2005).

#### 4.1.4 Syntactic and semantic aspects

This level builds on Marchand's (1969, 54-59) aspect of 'grammatical deep structure', which postulates an underlying sentence for each complex lexeme. The noun dining room, for example, is said to be connected to the sentence (We) dine in the room or the noun eating apple is based on the sentence (We) eat the apple. The syntactic functions are then attributed to each constituent, e.g. predicate + adverbial or predicate + object (also compare Lipka 1994, 4). What follows from this is that one sentence can be the basis of several different 'types of reference', as Marchand (1969, 32-38) describes them. Depending on which element is topicalised as the determinatum, the sentence We eat the apple can be the basis for either the so-called subject-type of reference (apple-eat/ER), the object-type (eating-APPLE), or the predication-type (apple-eat/ING). Additionally, Marchand suggests an adverbial complement type, which is present in lexemes like swimming/POOL or carving/KNIFE. It is important to note that the criteria for these types of reference are purely syntactic (Lipka 1994, 3). Lipka holds that for the description and analysis of wordformation patterns the fundamental differences between lexemes which are morphologically parallel need to be specified even further. For the distinction of words like payER (Agent), cookER (Instrument), dinER (Location), mournER (Experiencer), and containER (Object), he has modified Marchand's approach by adding a semantic component to this otherwise purely syntactic basis (Lipka 1994, 3-4). A semantic component of this type is also important for the lexemes that are the focus of the present book. If we compare examples like to handwash, to sunbathe, to daydream, or to dry-clean, it becomes obvious that the semantic relationship between the constituting elements is different. To handwash means 'to wash by hand', to sunbathe means 'to bathe in the sun', to daydream means 'to dream during the day', and to dry-clean means 'to clean using no water'. We are concerned here with different semantic relations between the constituents of the lexeme. Since it will be helpful to generalize types from these exemplary cases, the following paragraph elaborates on the work of Charles Fillmore, who is often referred to as the founding father of the notion of 'semantic case relations'.

#### 4.1.4.1 Fillmore's 'semantic case relations'

In his famous paper "The Case for Case" (1968) and various others that followed (1969, 1971a, 1977, 2003, 2007), Charles Fillmore (1968, 21) deals with the so-called semantic 'case relationships' existing between a verb and its associated noun phrases in a sentence. Other linguists use terms like 'thematic roles', 'semantic roles', 'thematic relations' or ' $\theta$ -roles' to refer to the same issue (Frawley 1992, 197; also Dowty 1991, 548), although there may be slight differences and characteristics within each terminology, which I shall ignore here.

The basic idea of Fillmore's 'Case Grammar' is that every sentence consists of a verb and one or more noun phrase, which is associated with the verb in a particular relationship, the so-called case-relation (Fillmore 1968, 21). <sup>48</sup> Case Grammar regards case endings and prepositional phrases as reflecting some basic semantic relationships like Agent, Patient, Instrument, etc. Conceptually, these cases display the judgements we make about our environment: "judgements about who does something, who experiences something, who benefits from something, where something happens, what it is that changes, what it is that moves, where it starts out, and where it ends up" (Fillmore 2003, 463).

When it comes to a clear definition and a finite list including all existing cases or case relations, linguists are faced with serious problems. Fillmore (1977, 70) himself regards this as a "truly worrisome criticism of case theory". In this book, however, we shall not be confronted with the task of solving this problem, since the semantic roles mentioned most commonly in the literature will satisfy the purpose of this study. Among these are Agent, Patient, Theme, Experiencer, Beneficiary, Instrument, Source, Goal, Time, Locative, Reason,

<sup>48</sup> The notion of 'case' is borrowed from traditional grammar where nouns are inflected for different cases like nominative, genitive, dative, accusative, etc. Fillmore, however, uses the term in a different way, namely, to indicate the semantic cases or the underlying semantic relationships (Brinton 2000, 266). As Fillmore (1968, 21) himself points out, this modified usage of 'case' was first proposed by Frank Blake, who uses the term "to identify the underlying syntactic-semantic relationship".

Purpose, and Manner<sup>49</sup>. Source and Goal refer to both spatial and temporal starting/endpoints as well as to changes of state (Fillmore 1971a, 251). It is important to note that these semantic roles are not to be understood as case markers, i.e. they are not part of the syntax, but rather to be dealt with on the level of conceptual structure (Jackendoff 1990, 46–49).

## 4.1.4.2 Participants and circumstances

These roles can themselves be further subdivided into two different participant namely, into roles and types, non-participant/circumstantial roles, as is done by Frawley (1992, 201-228). As this distinction will turn out to be crucial with regard to verbal composition, I would like to go back one step and have a look at the elements that constitute a clause. Quirk et al. (1985, 49-50), for instance, distinguish subject, verb, object, complement and adverbial. These elements can be arranged on a scale of centrality and periphery with the verbal element being the most central one regarding both its position and importance in a clause. At the very end of the scale are adverbials. Unlike verbs they are usually mobile and do not play a role in determining which other elements have to occur. Moreover, they "may be regarded, from a structural point of view, largely as 'optional extras', which may be added at will, so that it is not possible to give an exact limit to the number of adverbials a clause may contain" (Quirk et al. 1985, 50). Therefore, they can be considered as rather independent.

This idea recalls the work of the French linguist Lucien Tesnière, who, in his posthumously published *Eléments de Syntaxe Structurale* (1959), distinguishes between *actants* and *circonstants* (Fillmore 1994, 158). He takes the verb to be the centre of a clause, in his terms the

<sup>49</sup> All these semantic roles are understood in the sense defined in Fillmore (2003, 464). For more thorough discussions and lists of semantic roles, cf. Brinton (2000, 266–276), Fischer (1997), Frawley (1992), and Fillmore's work on Case Grammar, a good overview of which can be found in Dirven and Radden, eds. (1987). For specialized reading on the individual characteristics of certain semantic roles, which are only of secondary interest here, see Cruse (1973) (on the Agent), Lakoff (1968) (Instruments), Schlesinger (1989) (agentive Instruments), Dowty (1991) (on thematic proto-roles) with a related discussion in Primus (1999).

*nœud verbale*, which functions in a way that can be compared to an atom attracting a smaller or bigger number of *actants*:

On peut ainsi comparer le verbe à une sorte d'atome crochu susceptible d'exercer son attraction sur un nombre plus ou moins élevé d'actants, selon qu'il comporte un nombre plus ou moins élevé de crochets pour les maintenir dans sa dépendance. (Tesnière 1959, 238 [emphasis in original])

This illustrates what is commonly known as the 'valency' of a verb<sup>50</sup>. Fillmore (2003, 459) himself states that Tesnière's ideas of valency have been one important influence on his Case Grammar, with which he hopes to add a semantic perspective: "The theory of cases can also be seen as offering at least part of the SEMANTIC VALENCE descriptions of verbs" (Fillmore 1977, 60 [emphasis in original]). The fact that Tesnière (1959, 109) treats the subject as one of the verb complements instead of allowing it a special status ("le **sujet est un complement comme les autres**" [emphasis in original]) plays another decisive role in Fillmore's theory.

Although Tesnière's theory is primarily syntactic, as the title suggests, he already hinted at the importance of semantic factors (Götz-Votteler 2007, 37). He (1959, 102–106) uses another well-known metaphor to describe the process expressed by a verb in a sentence. It expresses a 'little drama' which comprises both actors (*actants*) and circumstantial roles (*circonstants*). I will here use the English terminology, which distinguishes 'participant roles' from 'circumstantial roles' (Lyons 1977, 497). According to Tesnière (1959, 102–106) up to three participants can be involved in the drama, corresponding to the arguments that fill valency slots of a verb, mostly the subject, the direct and the indirect object of a sentence. They are always noun phrases (or equivalents of noun phrases) and, what is crucial for us, obligatory: "l'actant fait corps avec le verbe, au point qu'il est souvent indispensable pour compléter le sens du verbe" (Tesnière 1959, 128). Circumstantials, on the other hand, represent the conditions of

<sup>50</sup> As noted by Rickheit and Sichelschmidt (2007, 164), a similar idea was already formulated much earlier by the Indian grammarian Panini (about 480 B.C.). He is supposed to have been the first to describe the structural dependencies that exist between linguistic expressions.

"temps, lieu, manière, etc." (Tesnière 1959, 102), i.e. the conditions of time, place, manner, etc., in which the event takes place. Thus they function as adverbials and their number is practically unlimited. In contrast to the obligatory participant roles, circumstantials are optional and not necessary to complete the meaning of the verb, but only give additional information concerning temporal circumstances, etc. (Tesnière 1959, 125–128).

Tesnière's (1959, 102) identification of circumstances as adverbials of "temps, lieu, manière, etc." is not very clear-cut. Although this phrase, as Fillmore (1994, 158) correctly points out, "has been repeated countless times since then, to characterize what might or might not be seen as a natural class of adverbial notions", the etc. in this definition "covers a great deal, making the search for coherence difficult". Lyons (1977, 497), for example, adds an adverbial type giving the Reason of an action: "If we are describing an action in English, we may tell our interlocutor, not only who did what to whom (or what), but also when, where, how or why he did it" [emphasis added]. Many linguists offer alternative lists of adverbial classes (e.g. Palmer 1924, 169-185; cf. also Nilsen 1972 for a review of the literature), the most complete of which is, when it comes to semantic varieties, probably the one found in Quirk et al. (1985), as noted by Fillmore (1994, 160). In a chapter about The semantics and grammar of adverbials, they distinguish seven categories of semantic roles, most of which are further subdivided, and these subdivisions add up to a total of 28 different adverbial roles (Quirk et al. 1985, 479-486). Although this comprehensive list contains a lot of valuable information about the semantic extent of adverbials in English, for our purposes, it seems to be too detailed.

Moreover, Tesnière's equation of adverbials with circumstantials in general is problematic, too. He himself has to admit that the prepositional phrase *de veste* in *Alfred change de veste* ('Alfred changes his coat') approaches the class of participants since the meaning of the verb remains incomplete without it (Tesnière 1959, 128). Quirk et al. (1985, 51) also point out that "the adverbial category [...] is in fact a heterogeneous category, within which there are relatively central and relatively peripheral types of adverbial." Some are totally optional while others are obligatory to complete the meaning of a verb. Whereas Quirk et al. (1985, 52) explain this difference with the notion of centrality and periphery, other linguists would define such obligatory elements as complements.

Halliday (1972) tackles the problem by offering a threefold distinction. He separates 'participants' (Tesnière's *actants*) from 'circumstances' (*circonstants*) and subdivides the latter into an inner and an outer type. The inner type is represented by adverbial complements which are "more central to the process" (Halliday 1972, 149) and thus obligatory in order to realize the verb meaning, as *in the wash* in *He put all his jewels in the wash*. The outer type, on the other hand, comprises all other optional adverbials, like the place element in *He lost all his jewels in the wash* (Halliday 1972, 149–150). Here the prepositional phrase can be omitted or used sentence-initially without affecting the grammaticality or the meaning of the phrase (Brinton 2000, 181).

When talking about Tesnière's metaphor, it was stated that participant roles all play an essential part in the drama designated by the verb. Each of them represents a separate actor interacting with the remaining participants in a way determined by the verb. They have distinct and well specified functions that contribute to the whole act. Therefore, each participant represents a role on its own. We conceptualize a sentence like Yesterday in the library, Sam gave Peter a book as having three core components, namely, Sam, Peter and book, which is reflected on the level of grammar, where each of them is assigned a separate grammatical function: the subject, the direct, and the indirect object. For our study this might suggest that participant roles, which constitute the main components of a sentence and are therefore essential for its grammaticality, are mostly realized in a distinct lexeme and are too important to be combined with another element. Thus, they may hardly occur as first constituents of verbal (pseudo-)compounds. This hypothesis will be tested in chapter 5.

Circumstantials of the outer type, on the other hand, are totally independent from the verb meaning and mobile within the clause. They are, as the name suggests, circumstances which surround the whole situation. Conditions of time, place, manner, and so on are virtually attached to everything since everything can be said to happen somewhere, at some time, in a certain way, and so on. Being adverbials, they modify the situation represented by the participants. This suggests that, on the morphological level, such adverbials can also literally be attached to another lexeme to form a verbal compound. Just as they provide additional information as to where, when or how something happens in Tesnière's stage performance, they would perform the same task as part of a verbal compound, namely, as a modifier of the head verb. This is also the role they have been given in traditional linguistics: "they are used as modifiers" (Palmer 1924, 169).

Before continuing our discussion, it is necessary to point to an important distinction. First, there is a difference between clause constituents like subject, direct object and indirect object and the semantic roles of the kind just mentioned. Clause constituents belong to the domain of syntax; they indicate syntactic relations of nouns and verbs and thus describe features of sentences. Semantic roles, on the other hand, describe features of predications. Although they often correlate, semantic roles must not be derived directly from grammatical ones (Frawley 1992, 198–200).<sup>51</sup>

Within the group of semantic roles we have to keep the conceptually required number of roles separate from the number of arguments that must be realized in a sentence for reasons of grammaticality<sup>52</sup>. The COMMERCIAL EVENT- scene' (Fillmore 1971b, 375 and 1977, 72–74) conceptually requires four roles, i.e. the buyer, the seller, the goods or services, and the money, which, however, do not all have to be realized in a sentence. Depending on which perspective the speaker wishes to take, only the relevant aspects have to be included. The sentence *I bought a dozen roses*, which only includes the buyer and the goods, is perfectly understandable, even if it realizes only two roles of the prototypical four-role event. In each case, more roles can be included "via nonnuclear elements of a sentence" (Fillmore 1977, 73), e.g. *I bought a dozen roses from Harry for five dollars*.

<sup>51</sup> Cf. also Fillmore (1968), Aarts and Meyer (1995) and Schlesinger (1995).

<sup>52</sup> Both of them are distinct from the various circumstantial roles, which are for the moment left aside. These circumstantials can be added to any event and are different from the conceptual aspects which are specifically required by a situation (Fillmore 1977, 74).

In this context, I would like to briefly return to the notion of 'salience' (compare 3.4.1), which deals with the question "under what conditions something can be brought into perspective" (Fillmore 1977, 75). Without going into detail here, I want to mention some interesting points, since they confirm the hypothesis that the crucial or main components of a sentence are less suitable for forming a compound. The elements that are brought into perspective, the subject and the direct object, are what Fillmore (1977, 75) calls 'nuclear elements'. If we compare the two sentences I hit Harry with the stick and I hit the stick against Harry, we might say that the first sounds more natural, i.e. is unmarked, while the second somehow treats Harry as some physical object. The reason for this is that animate beings are inherently more worthy of inclusion than inanimate objects. If we assume that those elements that are brought into perspective are essential and discrete elements of the sentence, this first saliency condition implies that animate semantic roles like the Agent, the Beneficiary, the Experiencer, and so on cannot constitute the first element of a verbal compound. The second saliency condition, according to Fillmore (1977, 76), is "change of state or change of location". This seems to be logical since something that changes automatically attracts attention and in the majority of cases can be regarded as the most important part of the sentence, the thing talked about. Consequently, it constitutes an essential part of the clause-a participant-and can thus not be part of a verbal compound. Following this theory, Patients (which change in state) and Themes (which change in location) could be assumed to be avoided as first constituents of verbal compounds. To these two conditions Fillmore (1977, 78-80) adds two more factors, namely, definiteness and totality. Accordingly, in the sentence I loaded the truck with hay the reader gets the impression that the truck is affected completely by the event, whereas in I loaded hay onto the truck, where the truck is no longer in object position, this is not a necessary assumption. These four conditions form some kind of 'saliency hierarchy' with humanness at the top. In this context, the link to human conceptualization as discussed in 3.4 becomes obvious. Semantic roles therefore also play an important role in structuring our perception of the world. This has also been pointed out by Langacker (1993, 459), who says that the

conceptual distinction between the 'setting', provided by the circumstantials, and the 'participants' is based on visual perception:

For the most part, the entities construed as participants are small, compact, and mobile. They move around and interact within a setting that at least in relative terms—is large, stable, and inclusive. While this conceptual opposition is not limited to the visuo-spatial domain [...], we can plausibly relate it to what happens almost every time we open our eyes and look at something: within a large, inclusive spatial expanse, we focus attention on one of many objects that are small and compact by comparison. (Langacker 1993, 459)

Applying these saliency conditions to the above-mentioned semantic roles would exclude all participant roles as possible first constituents of a verbal compound, except for the Instrument. Specifications of time, place or manner can be added to any situation, which may be why circumstantial roles more readily combine with verbs to form a complex lexeme than participant roles. This is in line with my assumption that only optional, "less important" elements of a sentence can be attached to a verbal head lexeme, and will be examined in the empirical analysis presented in chapter 5.

Now we have arrived at the conclusion that participant roles, due to reasons of saliency and because of the fact that they represent distinct actors, which are not without reason conceptualized and grammaticalized as distinct classes, are less suitable for forming a compound with a verbal head element. In the following I am therefore going to concentrate on semantic roles that can function as circumstantials<sup>53</sup> of the outer type, to use Halliday's term.

#### 4.1.4.3 Circumstantial roles used for classification

The next question to be answered is how many and which roles might best be able to satisfactorily characterize the different semantic

<sup>53</sup> It might seem odd that Fillmore in his early papers talked only about "noun phrases" associated with the verb, ignoring prepositional phrases. In his essay "Under the Circumstances (Place, Time, Manner, etc.)", however, he explicitly deals with adverbials, although Case Grammar originally indeed "started out with semantic-role specifications of all of the arguments of valence-bearing words, not just the adverbial constituents" (Fillmore 1994, 162).

relations within the lexemes from the corpus. The definite outcome remains to be seen until the results of the corpus analysis are available, but it is useful to narrow down the range by anticipating the semantic roles which are most likely to surface. This is done in order to establish some reference points, while at the same time including the possibility that further roles may turn up. In general, the most common types of adverbials are Time, Location, Manner, and Reason (Brinton 2000, 191). Source and Goal can be regarded as subroles of Time and Location. We are now faced with the problem of classifying the Instrument-role, which is often regarded as a participant role (Frawley 1992, 208-210). One argument in favour of this classification is the fact that it can occur in the subject position. It occupies the third position in Fillmore's (1971a, 247, 252) 'Case Hierarchy', which determines the subject selection 54. The noun phrase that most naturally functions as the subject of a sentence is the Agent role. If an Agent is missing in the sentence, an element occupying a lower position in the hierarchy has to fill the subject slot, like the Instrument in A hammer broke the window (Fillmore 1968, 22).

Following Lyons (1977), however, I would label the Instrument a circumstance, answering the question *how?*. Lyons, who argues that "an expression referring to the instrument will tend to be excluded from the nucleus and made into an adjunct" (Lyons 1977, 498), since the promotion of

the instrument with which an action is performed (or more generally of an expression referring to one of the circumstances of a situation) from adjunct status to that of subject or complement in the sentence-nucleus always constitutes a deviation from what is the most usual and the most neutral way of describing a situation (Lyons 1977, 497)<sup>55</sup>

Summarizing what has been said so far brings us to the following semantic roles that are assumed to enable a satisfactory classification of verbal compounds:

<sup>54</sup> The complete hierarchy includes the following: Agent, Experiencer, Instrument, Object, Source, Goal, Place, Time (Fillmore 1971a, 252).

<sup>55</sup> Cf. also Schlesinger (1989), who suggests two 'naturalness conditions', which make sentences with an Instrument in the subject position sound natural again.

- 1. **Time**, answering the question *when?* and including the subcategories temporal Location, temporal Source, temporal Goal, Duration, and Frequency (Fillmore 1994, 164).
- 2. Locative, answering the question *where?* and including the categories spatial Location, spatial Source, spatial Goal, Path<sup>56</sup>, and Direction.
- 3. Manner, answering the question how?
- 4. **Instrument**, also answering the question *how?* and referring to the means by which an action is performed<sup>57</sup>.
- 5. Causality, covering the categories Reason (the "motivational source" (Frawley 1992, 227)), Purpose (the "motivational goal" (Frawley 1992, 227)), and Result.

## 4.1.5 Independent semantic analysis

Coming back to Lipka's approach to the analysis of word-formation, the fifth level concerns the independent semantic analysis of complex lexemes. This level is assumed to consider aspects like demotivation and lexicalization, which Lipka, as we have seen in 3.1.1, regards as a diachronic process (Lipka 1983, 927). With respect to the empirical part of this book, this level of analysis will be satisfied by taking into account the semantic idiosyncrasies of each lexeme: lexicalized meaning, figurative language like metaphors or metonymies, and so on. The lexeme *to headhunt* 'to seek (a person) as a senior executive or other skilled employee' (OED, s.v. 'head-hunt, *v*'), for instance, cannot satisfactorily be analysed with only the help of levels one to four of Lipka's approach. It has a highly specialized meaning and contains both a metaphor (*bunt*) and a metonymy (*head*), which can only be "detected" by means of an independent semantic analysis.

<sup>56</sup> Fillmore (1971a, 259) refers to David Bennett (1970), who identified *along the canal* as the 'Path' in the sentence *He walked from the cemetery to the chapel along the canal*.

<sup>57</sup> Fillmore (1994, 164) illustrates the difference between Manner and Instrument with the following question/answer joke: *How should you lift a python out of a trashbin?—Very carefully.* The question asks about the Instrument needed to accomplish the task, while the answer refers to the Manner.

### 4.1.6 Pragmatic aspects

Finally, a comprehensive analysis must include the level of pragmatics (Lipka 1983, 927–928). Both the context and the situation in which a lexeme is used influence the hearer/reader's interpretation when they are confronted with contextuals like *pumpkin-bus* or so-called deictic compounds like *apple-juice seat* (Downing 1977). Extralinguistic knowledge also plays an important role in the analysis of novel lexemes and ensures that the language user arrives at a plausible meaning (Lipka 1983, 927–928).

Every type of empirical analysis has to cope with certain shortcomings and is confined to its boundaries, in our case, the lack of completely natural situations in the questioning of participants (chapter 6). However, context as a variable will be taken into account up to a manageable extent.

The six levels of Lipka's approach to word-formation provide systematic categories for the upcoming analysis of verbal compounds and will therefore be used to classify the lexemes to be examined and tested both in the corpus and dictionary study as well as in the questionnaire study based on the results of the former. One addition to the levels put forward so far has to be made, however. As has been noted, Lipka's approach is a systematic extension of the categories provided by Marchand (1969), who argues strictly against the existence of verbal compounds. Therefore, his framework only considers nonverbal products of word-formation. In order to address the research question of this study, however, the hypothetical structure of exactly these verbal compounds has to be approached. To be able to answer the question of why a verb like to \*bookread does not exist we need to at least find out more about the underlying structure and learn what such a compound would look like if it existed. Thus, we are in need of a further level of analysis, which takes into account verb-specific characteristics, which are in any case expressed in a temporal dimension.

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## 4.1.7 Additional criterion: Temporal structure

The classification of events, or more specifically verbs, has a long tradition, especially in philosophy. It was noted early that predicates differ in their temporal structure, although there has always been disagreement when it comes to the nature or exact number of verbal categories. But it is clear at first sight that there is a difference in temporal structure between to reach the top of a mountain and to climb a mountain (Harkness 1985, 13). Aristotle was perhaps the first to deal with this topic. He noted that the meanings of some verbs involve an end or result, whereas others do not, and in his Metaphysics he made a distinction between kinesis ('movements') and energiai ('actualities'). His ideas were picked up and developed further by different authors like Ryle (1949, reprinted 1958), Vendler (1957, 1967), Kenny (1963), Schopf (1976), and various others<sup>58</sup>. It was Vendler, a philosopher, who first tried to separate verbs into four different categories, regarding their restrictions to tenses, time adverbials and logical entailments (Dowty 1979, 52-54). His classification of verbs, based on their inherent 'time schemata' (Vendler 1957, 144), into 'states', 'activities', 'achievements' and 'accomplishments' is perhaps the most established one and has been accepted by many linguists<sup>59</sup>.

#### 4.1.7.1 Zeno Vendler's taxonomy of verbs

In the very beginning of his paper "Verbs and Times" (1957, 143– 145)<sup>60</sup>, Vendler states that the use of verbs, since they have tenses, involves the concept of time. His starting point is the observation that some verbs can be used in the progressive form (e.g. *run, write, work*), while others (like *know* or *love*) cannot. This suggests that the former are processes consisting of successive phases and going on in time, while the latter are not. This roughly corresponds to the well-

<sup>58</sup> A good overview of Ryle, Kenny and Vendler can be found in Schopf (1984, 40– 53); Zydatiß (1976, 47–50) also contains a table contrasting their terminologies.

<sup>59</sup> Cf. Brinton (2000), Dowty (1979) and Harkness (1985).

<sup>60</sup> Large parts of Vendler's paper "Verbs and Times" can also be found in his *Linguistics in Philosophy* (1967).

known difference between stative and non-stative (or active) verbs in English<sup>61</sup>.

When it comes to the class of verbs allowing continuous tenses, Vendler (1957, 145–146) distinguishes between what he calls 'activities' and 'accomplishments'. The first group is represented by verbs like *run, walk, swim, push sth.*, and so on. Accomplishment-verbs are for example *paint a picture, make a chair, build a house*, or *write a novel* (Vendler 1957, 150). In contrast to activities, which may go on for an indefinite time, accomplishments imply a completion of the activity; they have a terminal point which has to be reached for the statement to be true: "if one stops drawing a circle, he did not draw a circle. But the man who stops running did run" (Vendler 1957, 145).

Verbs which cannot take a progressive tense are subdivided by Vendler (1957, 146-147) into 'achievements'62 like recognize, realize, lose, find, reach, win, etc. and 'states' like possess, want, like, love, hate, know, etc. (Vendler 1957, 150). These do not denote processes but can be predicated for a subject for a certain time as being true or false. The major difference between states and achievements is that the former last for a shorter or longer period of time, while the latter happen at a single, short moment. Even if we often say things like It took him three hours to reach the summit, we are not to confuse achievements with accomplishments. It is not the reaching of the summit itself that took three hours, but the preceding climbing. As to states, Vendler (1957, 150-152) makes a further distinction. He claims that many activities, as well as some accomplishments and achievements have a derived state sense, namely, when they denote a habit. For instance, the question Are you smoking? asks about an activity, whereas Do you smoke? asks about a state. This, according to Vendler, explains why a smoker

<sup>61</sup> See also Lakoff (1966) on this topic. He also proposes various tests for distinguishing between active and non-active verbs. According to these, statives can neither occur in an imperative, progressive, or pseudo-cleft (the so-called "Do-something"-form) construction, nor as complements of *persuade* or *remind*, or in combination with Manner adverbials like *enthusiastically*. Non-statives, on the contrary, allow all of these.

<sup>62</sup> Zydatiß (1976, 57) criticizes the term 'achievement': "Vendlers Wahl des Begriffs 'achievement' ist unglücklich, bes. zusammen mit 'accomplishment'. Da achieve selber ein Accomplishmentprädikat ist, wäre ein weniger irreführender Begriff für diesen Situationstyp wünschenswert".

(activity verb), as well as a writer (accomplishment) or a dogcatcher (achievement) can say at all times that he smokes, writes books or catches dogs, even if he is not currently involved in the activity. These are called 'specific states' (the terminology recurs to Ryle), which are contrasted with 'generic states' of, for instance, rulers (of a country), educators or grocers. These denote manifold and quite disparate actions, which is the reason why a ruler can never actually be said to be ruling at a specific moment, and so on.

Brinton (2000, 147), however, offers a different analysis. She says that *she was singing* as well as *she sang* and *she sings* are activities, the first viewed as ongoing, the second perfectively, and the third habitually. She characterizes a habitual activity as "happening in bound segments on different occasions" (Brinton 2000, 147), a feature that can be attributed to every situation type, not only activities. In a footnote she points to Vendler's classification: "Some scholars consider habits to be states, but because of their being volitional and consisting of multiple events, they are better understand [sic!] as a separate situation type" (Brinton 2000, 159). To simplify matters, I will stick to this interpretation since the simple form of a verb (and we are dealing with verbal (pseudo-)compounds mostly in the infinitive) does not reveal a habitual sense, which after all is "just" a derived sense, a feature that can be attributed to a verb.

A similar typology has been proposed by Van Valin and LaPolla (1997, 82–83), who distinguish four different types of states of affairs: situations, events, processes, and actions. This distinction crucially depends on the existence of an "inherent terminal point", which implies that the inherent nature of a state of affairs involves a conclusion (Van Valin and LaPolla 1997, 83). These state-of-affair types correspond to Vendler's fourfold classification, with the difference being that Van Valin and LaPolla's types are based on properties of states of affairs, while Vendler's verb types rely on properties of linguistic predicates (Van Valin and LaPolla 1997, 92).

Vendler's typology of verbs will serve as a parameter of compound formation, which can be labelled the 'temporal structure of verbs'. The word *aktionsart* is often used in this context. However, it has often been confused with 'aspect', which refers to the grammatical category, whereas *aktionsart* refers to the lexical-semantic category (Schopf 1984, 46)<sup>63</sup>. This is what we are dealing with when examining verbal compounds, namely, the inherent temporal structure within a verbal lexeme.

## 4.1.7.2 Feature analysis of Vendler's verb types

To get a more thorough idea of the nature of Vendler's activities, accomplishments, achievements, and states, I would like to take up some of Brinton's (2000, 143) ideas. She assigns different semantic features to Vendler's verb types, namely:

- 1. [±STATIVE]: "this feature recognizes whether the situation denoted by the verb involves change [-STATIVE] or not [+STATIVE]; it is said that the [-STATIVE] (or dynamic) situation requires the input of energy, whereas a [+STATIVE] situation does not"
- [±DURATIVE]: "this feature recognizes whether the situation goes on in time [+DURATIVE] or occurs at a moment in time (punctual/instantaneous) [-DURATIVE]"
- 3. [±TELIC]: "this feature recognizes whether the situation has an endpoint or goal which is necessary for the situation to be what it is [+TELIC] or has no necessary conclusion [-TELIC]"<sup>64</sup>
- 4. [±VOLUNTARY]: "this feature recognizes whether the situation is a matter of an agent's voluntary or willful action [+VOLUNTARY] (intentional) or not [-VOLUNTARY]."<sup>65</sup>

<sup>63</sup> Also refer to Tobin (1993) for further reading on aspectuality.

<sup>64</sup> Schopf (1984, 47) points out that this distinction can already be found in Jespersen (1931, 92–93), who speaks of 'conclusive' and 'non-conclusive' verbs: "We must here distinguish two classes of verbs, *conclusive* and *non-conclusive*. In the first class the action is either confined to one single moment [...] or implies a final aim [...]. In the second class, non-conclusive verbs, [...] the activity, if any such is implied, is not begun in order to be finished." Garey (1957, 105–106) takes up these ideas and offers a test to distinguish between telic and atelic verbs. If the question "if one was *verb*ing, but was interrupted while *verb*ing, has one *verb*ed?" can be answered *yes*, the verb is atelic, otherwise it is telic.

<sup>65</sup> Brinton (2000, 143) admits that this feature is not directly related to the temporal structure of a situation, but she retains it since "it has traditionally been treated with inherent aspect".

A combination of these features with Vendler's typology results in the following table (Brinton 2000, 144):

<u>state</u> , e.g. <i>love, resemble</i> [+STATIVE] [+DURATIVE] [-TELIC]	<u>activity</u> , e.g. <i>push, run</i> [-STATIVE] [+DURATIVE] [-TELIC]
[-VOLUNTARY]	[±voluntary]
accomplishment, e.g. dress, use up	achievement, e.g. kick, blink
[-STATIVE]	[-STATIVE]
[+DURATIVE]	[+DURATIVE]
[+TELIC]	([+TELIC])
[±VOLUNTARY]	[±voluntary]

Table 4.1: Typology of situation types (in Brinton 2000, 144)

The majority of this information is self-explanatory, only with achievements might there arise some problems. The first point to be mentioned is that the feature [±TELIC] could be disregarded here, since achievements "end as soon as they begin" (Brinton 2000, 145). They are punctual acts, which occur instantaneously, or changes of states happening at a single moment (Brinton 2000, 145). However, this is also the reason why I find it problematic to accept the feature [+DURATIVE] when talking about achievements. Brinton seems to explain this by saying that

achievements seem to fall into two subclasses: those that are truly instantaneous (such as *kick*, *flick*, *tap*) and those that, though they name a culminating point, usually involve a preliminary process (such as *find*, generally preceded by looking for, *reach the top*, generally preceded by working one's way towards the top). (Brinton 2000, 145)

In this respect, however, I will heed Vendler's advice not to confuse achievements with accomplishments (see above) and treat the former consistently as [-DURATIVE].<sup>66</sup>

<sup>66</sup> For the sake of completeness I should mention another very detailed taxonomy, namely that of Schopf (1976, 1984). He, like Vendler, is interested in the inherent temporal structure of verbs and created a very complex system of verb classification. He distinguishes 'states' (*Zustände*) from 'processes' (*Prozesse*), which

The aim of this chapter has been to establish a coherent system of criteria according to which verbal (pseudo-)compounds can be described and formed. Such a framework has been proposed by Lipka (1983), who suggests the six categories discussed above. Additionally, a level of analysis considering the temporal dimension, which is essential for verbs, has been included. To summarize, the parameters according to which the lexemes in my study (both the corpus and dictionary analysis and the questionnaire study) will in fact be classified therefore are:

- a) the compound's morphological shape and structure;
- b) the semantic relation between the constituents which, based on the assumption that especially circumstantial roles are relevant for the purpose of my study, basically include the following five roles: Time, Locative, Manner, Instrument, and Causality;
- c) specialized meaning due to lexicalization or figurative language; and
- d) the verb's temporal structure, which is based on Vendler's classification into states, activities, accomplishments, and achievements.

For a still more detailed classification refer to Quirk et al. (1985, 200–209), who offer eleven categories of so-called 'situation types'.

in turn are divided into 'not quantified' (*ungerichtete nicht-quantifizierte/einfache Prozesse*) and 'quantified' (*quantifizierte Prozesse*) processes. The former correspond to Vendler's 'activities' and can either be periodical (*zykliscb*) or nonperiodical (*azykliscb*). The latter contain the so-called 'directed quantified process' (*gerichteter quantifizierter Prozess*) corresponding to Vendler's 'accomplishments', and 'punctual events' (*punktuelles Ereignis*), roughly corresponding to 'achievements'. This whole group of 'quantified processes' is further subdivided according to whether they are initially determined, initially and finally determined, including change or not, and so on.

# 4.2 A cognitive model of new verbal compounds and pseudo-compounds

Against the background of the theory provided in the preceding sections of this study, it can be stated as a preliminary summary that we have come across diverse hints regarding possible constraints on word-formation. Many of these aspects can be applied to verbal compounds, which might eventually lead to a solution to the overriding goal of this study, namely, to find reasons which explain the extreme lack of productivity of genuine verbal compounds. Combining the different aspects derived from the existing linguistic theory provides us with a rough idea concerning which morpheme combinations can be excluded right from the beginning. Taking into consideration cognitive aspects also gives insights into the processes that might be involved when a language user comes across unusual combinations of lexemes. Against this background, I would like to propose a cognitive model which is intended to explain the processes taking place when a hearer is confronted with a novel verbal compound. This model is meant to be understood as a hypothetical one, which will be verified by means of the analyses carried out in chapters 5 and 6. By so proceeding, it will be possible to draw valuable conclusions that help answer the overarching research question.

The model is influenced by three main observations that have been made during the discussion of previous linguistic research: First, Marchand's general statement that all verbal compounds (or at least the vast majority, leaving aside some rare exceptions) in English are actually derivations from a nominal or adjectival base. An aspect that also comes into play here is the possibility to render the meaning of such a verb by including the meaning of the base, i.e. *to babysit* can be paraphrased as 'to act as a babysitter' (although one can of course also employ a longer paraphrase explaining the concept related to *babysitter* and say 'to take care of a child in the absence of its parents', which of course relates to the nominal concept since these meaning components cannot be derived from a combination of *baby* and *sit*). This leads to the hypothesis that when confronted with an unfamiliar verbal compound, a hearer will try to have recourse to a noun or adjective. To give a simple example, when hearing the verb *to \*speed*- *date* he will mentally—and probably more or less unconsciously recur to the noun *speed-date* and its related concept, from which the verbal meaning will be derived.

If no such base exists, the meaning of the verb has to be derived by other means. Here, a second observation comes into play, since we have learned that word-family effects play a crucial role in facilitating cognitive processing. Thus, I would assume that in a case like *to \*slow-date*, where the hearer cannot recur to an existing base (as the noun *\*slow-dating* or *\*slow-date* is not conventionalized in Standard English), the word-family effects enable him to access the noun *speeddate* instead. From this concept a possible meaning of the verb *\*slowdate* will be derived and interpreted as the contrasting case, e.g. 'to deliberately take some time in getting to know each other in the context of dating or seeking a partner'.

This entire procedure is governed by the third major determinant, namely, the principle of newsworthiness. The economy of the vocabulary and a common sense of language tell us that only matters with a certain relevance are encoded in a separately stored lexeme. Newsworthiness' is a rather fuzzy term which calls for some kind of definition. However, I will leave it open at this point and provide some clear-cut categories of newsworthiness in the next chapter after the corpus and dictionary analysis has been carried out, as the results might indicate what kinds of relevance can be found in the lexemes.

The three procedural steps summarized above lead to the assumption of the following model:



Figure 4.1: A cognitive model of the processing of new verbal compounds and pseudo-compounds

When a hearer encounters a novel verbal compound, he will first try to retrieve the meaning by taking recourse to a (usually nominal) base concept (1). If this is not possible, the lexeme will be split into its constituent morphemes (C1 and C2). The next step is then to try to find an existing analogous formation which is connected to the test lexeme through one of the constituents by means of word-family effects (2). This means that if one of these components exhibits some word-family effects, the underlying concept serves as a base for deriving a possible meaning. In addition, the criterion of newsworthiness is essential for all lexemes. The easier it is to retrieve a possible meaning, the more likely it is that the compound will be accepted. This model also logically combines the findings of 3.3, where it has been argued, on the one hand, that the processing of novel lexemes does not necessarily require conceptual decomposition, while on the other hand word-family effects facilitate the interpretation. If this model is proved valid by the upcoming analyses, this would imply that such verbs are not processed as compounds, but function only by mentally going back to an existing base concept, which triggers the verbal meaning. If there is no existing base lexeme, wordfamily effects may play a role, meaning that constituents of analogous concepts then form the base.

The validity of this model will be tested by means of two empirical studies (chapters 5 and 6). The first step will be to see what kinds of lexemes exist in the language and what characteristics they exhibit (chapter 5). On the basis of the data obtained from the corpus and dictionary study the subsequent chapter will be dedicated to an analysis of possible fictitious compounds. First of all, however, it seems reasonable to clarify the terminology used in this study, since terms like 'verbal pseudo-compounds', 'genuine verbal compounds', 'fictitious compounds', etc. are easily confused. For the forthcoming analyses, however, these notions and the differences between them are essential and therefore should be clearly distinguished from each other.

# 4.3 Terminology used

The terminology used in linguistic literature can at times be confusing and sometimes we are confronted with notational terms lacking a consistent usage among different authors. Moreover, a sufficiently detailed definition of the different terms as they will be used in this study, and a dissociation from other notions, has not yet been given. At this stage a clear delimitation becomes crucial, which is why this chapter will provide a system of classification of the different types of compounds used in this study.

## 4.3.1 Verbal compounds and pseudo-compounds

As has been shown in chapter 2, Marchand argues that genuine verbal compounds (GVC), in order to be genuinely compounded, would have to exhibit a determinant/determinatum structure. In other words, this means that they need to be endocentric. Verbal pseudocompounds (VPC), being derivations from noun or adjective compounds, do not have this determinant/determinatum structure, thus they are exocentric. These differing aspects can be depicted as follows:

Genuine Verbal Compounds	Verbal Pseudo-Compounds
(GVC)	(VPC)
function as verbs	function as verbs (no synthetic compounds)
formed by actual composition	derivations (back-formations, zero-derivations, analogies)
determinant/determinatum-	no determinant/determinatum-
structure, endocentric	structure, exocentric

Table 4.2: Verbal compounds and pseudo-compounds

A lexeme like *to cold shoulder*, for example, is obviously exocentric. I would argue though, that some VPCs of the English language can indeed be given an endocentric reading as well, which satisfactorily renders the meaning of the verb, although diachronically speaking it is a derivation. Precisely this point has also been mentioned in Brömser (1985, 102), who remarks that dictionaries sometimes provide meaning definitions for compounds with a verbal second element that follow a determinant/determinatum analysis.

The example *to daydream* can clearly be interpreted endocentrically as meaning 'to dream during the day' (which at the same time is metaphorical since one is not literally dreaming). The same is possible for a large number of other lexemes, e.g. *to sleepwalk*, *to softland*, or *to lipread*. This last type of lexeme will be the one focused on in the first part of the study, i.e. the corpus and dictionary analysis. The following diagram summarizes these findings:



Legend:

 $\begin{array}{l} x = \mbox{free lexical morpheme of word class A, V or N (1^{st} \mbox{ constituent}) \\ y = \mbox{free lexical morpheme of word class A or N (2^{nd} \mbox{ constituent}) \\ V = \mbox{free lexical morpheme of word class V} \\ _V = \mbox{ compound as a whole functions as V} \end{array}$ 

Figure 4.2: Verbal pseudo-compounds interpretable as endocentric combinations

# 4.3.2 Actual and possible lexemes

In addition to the distinction between GVCs and VPCs, a second distinction has to be made on the basis of whether a lexeme actually exists or not, and whether it might exist or not. Aronoff (1983, 163; also 1981, 17–19) has offered a distinction between actual and potential words of a language. Actual words are part of the lexicon, while the second group is defined by phonological and morphological factors. Potential words follow existing word-formation rules and *conld* thus become part of the lexicon, i.e. they do not exist, though they could. Both groups are subordinate to the class of possible words, which comprises all lexemes, regardless of whether the lexeme is actually part of the lexicon or follows a productive word-formation rule.

Applied to the purpose of this study, the terminology employed in the subsequent chapters will accord with the following convention:



Legend:

x = free lexical morpheme of word class A, V or N (1<sup>st</sup> constituent)

V = free lexical morpheme of word class V

 $_{\rm V}$  = compound as a whole functions as V

P = compound as a whole is a pseudo-compound

\* = non-existing as a verb, hypothetical lexeme

Figure 4.3: Different types of verbal (pseudo-)compounds

The lexemes that will be analysed in the context of the corpus and dictionary analysis are VPCs interpretable as having an endocentric structure, which requires a verbal second constituent, e.g. to sunbathe. The questionnaire will be designed to examine verbs of three different kinds: First, possible GVCs like to \*spongeclean, which cannot be traced back to a nonverbal basis, i.e. are genuinely compounded. Second, potential VPCs like to \*palm-read, which are derivations from existing noun or adjective compounds (palm-reader). These possible lexemes need to have the same structure as the corpus verbs, the only difference being that the former do not exist. The third group equals

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the one present in the corpus analysis and serves as a distractor category.

# 5 Dictionary and corpus analysis

Having laid out the relevant theoretical foundations, we can now engage in the core issue of this book. To take up the initial research question, this study is interested in determining the reasons that explain why GVCs are so difficult to find—and are practically nonexistent—in the English language. The overarching goal of the present cognitive-linguistic study is, therefore, to arrive at an answer for the question of why language users hardly ever compound verbs, but derive them from existing nouns or adjectives instead. Since we are concerned with a word-formation product that does not exist as such, it seems wise to take as a starting point those lexemes with the closest resemblance, namely, existing pseudo-compounds. In order to get a more detailed idea of the underlying patterns of such verbs, this chapter will deal with an in-depth analysis of a large corpus, which comprises a multitude of attested VPCs.

# 5.1 Methodology

To begin with, I would like to describe what kind of data will be examined. Following this, the method of analysis will be presented, always bearing in mind Lipka's levels of analysis.

#### 5.1.1 Data

VPCs from two different sources will be analysed. On the one hand, the Longman Dictionary of Contemporary English (LDOCE) in the CD-

ROM version of 2005 will serve as a basis for manually gathering all compound verbs recorded there. On the other hand, I will use the appendix of Cho's (2002) Synchrone und diachrone Untersuchungen zu den zusammengesetzten Verben im Englischen, which consists of 38 pages listing VPCs from three corpora (Broadcast News, Berliner Korpus and Time Korpus) and four monolingual dictionaries (The American Heritage Dictionary of the English Language, 3<sup>rd</sup> edition; Merriam-Webster's Collegiate Dictionary, 10<sup>th</sup> edition; Webster's New World College Dictionary, 3<sup>rd</sup> edition; and The Newbury House Dictionary of American English).

## 5.1.2 Method of analysis

For the analysis of the above-mentioned corpora and dictionaries all complex verbs that look superficially like compounds have been selected in a first step. This was only necessary for the LDOCE, since the appendix of Cho (2002) lists the individual lexemes without any context, which means that they could be used without further revision. As regards the LDOCE, I not only considered all verbs with a separate entry in the dictionary, but also those that are only mentioned within the entry of their respective base lexeme, e.g. the verb *to wind-surf* can only be found within the entry of the noun *wind-surfing*. Taken together, the LDOCE and Cho's (2002) appendix provided 1088 VPCs.

Since I am only interested in lexemes surfacing as genuine verbal compositions (in order to be able to later compare them to possible GVCs), a certain amount of filtering was necessary. Of the 1088 complex lexemes that function as verbs and consist of at least two free morphemes, exocentric compounds which made up roughly one third were deleted from the material relevant for the study. This is justified when considering the overall aim of this book, which is to find out why genuine verbal compounds cannot be formed productively in English. Hypothetical (and therefore fictitious) verbal compounds need to be endocentric, thus containing a verbal element; otherwise they would not be genuine compounds. Disregarding this requirement leads to pseudo-compounds, since all exocentric compound verbs are by definition back-formed or zero-derived, with the verb that denotes the main activity being outside the compound word (e.g. *to pigeonhole* means 'to *put* in a pigeonhole'). However, as has been argued in chapter 4.3, this does not exclude the possibility that some of these pseudo-compounds can also be interpreted as endocentric constructions, which are at the same time lexicalized to a greater or lesser extent. To take up an example given in chapter 4.3.1, *to day-dream* would provide a rather clear case, interpretable as 'to dream during the day', with *dream* being slightly lexicalized as 'to act as if one was dreaming'. Another example is *to sweet-talk*, interpretable as 'to talk sweetly', in which *sweet* has a metaphorical meaning ('pleasing to the ear/mind'), and the lexeme is further lexicalized, having the semantic feature [IN ORDER TO PERSUADE], which is not expressed in the constituents.

In pursuing the overriding goal of analysing apparent verbal compounds in order to later compare them to hypothetical genuine ones, all lexemes that did not allow for an endocentric interpretation were eliminated. This excluded all lexemes without a verbal constituent (e.g. *to bootleg*) and those cases where an endocentric interpretation is semantically incompatible with the actual meaning (e.g. *to pigeonhole*, although a homonymous verb *to hole* exists). A total of 642 lexemes of the form  ${}^{\rm p}[x+V]_{\rm V}$  remained as relevant material after having applied this filter.

We are here, of course, dealing with pseudo-compounds, i.e. back-formations or zero-derivations, rather than with real compositions. For the purpose of this study, I treated these lexemes as genuine compounds to obtain an insight into which combinations are theoretically possible and which patterns underlie established lexemes, in order to be able to compare them with possible GVCs in a second step. It might be objected, of course, that by doing so they were analysed according to a "wrong" pattern, since these patterns are of course not the ones that really lead to the formation of the words, because they are derivations. Admittedly, by doing this, a certain structure and interpretation is, for the sake of the analysis, being imposed upon these lexemes. Nevertheless, these so-called pseudo-compounds are in a way very close to genuine compounds. Historic and semantic analyses may argue for their status as back-formations/zero-derivations, but the very fact that they have been

termed 'pseudo-compounds' can be regarded as an argument that laypersons often mistake them for actual compounds. Most people are not aware of the fact that *to babysit* or *to sleepwalk* have not been formed of *baby* + *sit* or *sleep* + *walk*. It is all the more astonishing that if such words are taken to be compounded, hardly any, or even no, new verbal compounds are formed on the basis on these folketymological patterns. It is precisely by analysing these lexemes as genuine compounds that we can possibly gain insights as to why verbal compounding does not exist, even though in people's minds such combinations of a free morpheme and a verb do exist and are thought to be compounded. Either lexemes such as *to babysit* are only being analysed superficially as compounds, but cognitively processed in a different way, or there are certain structures in the English language that prohibit the direct formation of verbal compounds without an intermediate compound noun or adjective.

To specify in more detail what has been filtered out, I would like to give some examples. As has been discussed, VPCs that allow for an exocentric reading only, like to mothball, to moonlight, to bootleg or to pigeonhole have been eliminated. Some further types of lexemes were excluded right from the beginning; however these probably would not be called cases of proper composition anyway. They are marginal cases of reduplications, like to flip-flop ('to go, proceed, act, etc., with a flapping sound' (OED, s.v. 'flip-flop, v')) or to see-saw ('to move up and down, or backwards and forwards' (OED, s.v. 'see-saw, v')), folk etymologies like to piggyback ('to carry by piggyback, to give aid or assistance', originally probably a combination of to pick and pack (OED, s.v. 'piggyback, v')), numerals (to two-time), or trade names (to scotch tape). To count as a compound, the constituent elements have to be free morphemes, a criterion which excludes all kinds of blendings like to guesstimate or to breathalyse (which at the same time is a trade name), neoclassical compounds with combining forms such as to stereotype, and so on. As was already mentioned at the very beginning of the study, lexemes with particles or prefixes as first constituents are also not regarded as compounds, and the same goes for all kinds of clippings, acronyms and abbreviations (to deejay). For the identification of the underlying word-formation pattern and a dissociation of meaning, the OED online was consulted. Additionally, all lexemes

from Cho's appendix that are not attested in the OED were crosschecked and looked up in the following dictionaries: *The American Heritage Dictionary of the English Language*, 4<sup>th</sup> ed., *Merriam-Webster's Collegiate Dictionary*, 11<sup>th</sup> ed., the *Webster's New World Dictionary of American English, The Concise Oxford Dictionary*, 10<sup>th</sup> ed., *Oxford advanced learner's dictionary of current English,* 7<sup>th</sup> ed., and *Collins English dictionary*, 3<sup>rd</sup> ed. If this procedure was also unfruitful, they were googled, in order to get an impression about the semantics of the lexeme. The fact that around 60 lexemes have obviously been used in one of the corpora examined by Cho (2002), but are at the same time not attested in a dictionary illustrates that we are dealing with a borderline phenomenon, the lexemes finding their way into language only with a certain amount of difficulty, due to their markedness and the hesitation of language users to use them.

In a next step, these 642 lexemes were analysed with regard to their internal structure, according to Lipka's levels of analysis, thus taking into consideration morphological, semantic and syntactic aspects. The aim was to be able eventually to describe patterns according to which it would theoretically be possible to compound verbs in order to then compare them to genuine compounds and thus find out about the differences between these two groups. This might in the end supply an answer to the question of why the latter do not exist.

In a second step, hypothetical GVCs will be invented and tested for their acceptability (chapter 6). Following this, the underlying patterns of those GVCs that have been judged comprehensible and acceptable can then be compared with those of actually existing VPCs from the corpus. If a preponderance of the same patterns can be observed in both cases, this might point to the fact that the reasons inhibiting the generation of GVCs are not inherent in their components, but may lie elsewhere. In the following section, the results of the dictionary and corpus analysis will be presented.

# 5.2 Results

The criteria according to which the relevant lexemes have been analysed are strongly based on Lipka's categories, introduced in 4.1. Additional criteria, which will not be assigned major importance, but which will be considered as well if necessary, are the transitivity of the verb, tautological or contradictory meanings, and all further kinds of striking features that might also play a role in answering the research question.

To begin with, some purely statistical data: of 642 lexemes, 449 have been found solely in Cho's appendix, 33 are only attested in the LDOCE and 160 are registered in both. Among those lexemes found in the LDOCE, 119 were listed as a verb in a separate entry, 71 were named in the entry of the respective noun, and 3 in the entry of the respective adjective compound. To simplify matters, both the LDOCE and Cho's appendix taken together will from now on be referred to as the 'corpus' (although strictly speaking this term does not apply for dictionaries), unless they are supposed to be distinguished for some special reason. A compilation of all VPCs can be found in the appendix of this book.

## 5.2.1 Morphological shape and structure

With regard to formal characteristics, it was striking that the length of the lexemes was restricted. In contrast to the German language, for instance, where especially nominal compounds of practically any length can be formed if they remain comprehensible, the English language is much more limiting in this sense. The same seems to be true of verbs. The lexemes in the corpus that possess the greatest number of syllables are *to colorcoordinate*, *to comparison-shop* and *to freeassociate*. With regard to morphemes, I only came across verbs consisting of two free lexical morphemes. The one exception to this rule is *to finetoothcomb*, which consists of three free lexical morphemes. When it comes to the general length, it can be stated that the overall majority of verbs, namely, a total of 458, consists of two syllables only. Verbs like *to softboil, to cold call* or *to name-check* are short and

# of	# of	# of
corpus lexemes	syllables of C 1	syllables of C 2
458	1	1
111	2	1
46	1	2
12	2	2
6	1	3
1	1	4
3	2	3
1	2	4
3	3	1
1	4	1

obviously to the point. For the remaining VPCs the following figures apply:

Table 5.1: Number of syllables in the corpus verbs

What is striking is that especially for the second, i.e. verbal, constituent (C 2), a monosyllabic lexeme seems to be strongly preferred. Thus, there are 131 lexemes in which the first constituent consists of more than one syllable, but only 69 with a polysyllabic second constituent.

Moreover the data confirmed what has been stated above in 4.1.3, namely, that for N+V compounds, the modifier always has to be realized in the singular. Thus, we say *to lipread* instead of *to \*lipsread* or *to toedance* instead of *to \*toesdance*.

With regard to orthography, it was noticeable that the spelling is inconsistent in more than one case. While *to copy-edit* or *to toilet-train*, to give only two examples, are spelt with a hyphen in the LDOCE, they are attested as one word in Cho's appendix. The same holds for cases like *to coldcall/cold call*, which are sometimes spelt as one word, sometimes as two. This finding seems to reflect the fact that these words, in contrast to noun or adjective compounds, are probably stylistically marked and therefore only rarely used, hence producing a certain hesitation and uncertainty concerning their orthography.

When it comes to the morphological shape, three main classes can be distinguished. They are N+V, A+V and V+V compounds<sup>67</sup>. N+V compounds dominate, which can be regarded to reflect a general preference for compounding nouns and is not surprising since the majority of English compounds have a nominal first constituent, and this is where these verbs are then derived from. The following diagram gives an overview of the distribution of morphological shape:



Figure 5.1: Overall distribution of morphological shape

Thus, we can observe a strong preponderance of N+V compounds (435 lexemes, 68%), followed by A+V compounds (138 lexemes, 21%) and V+V compounds (54 lexemes, 9%) the last of which com-

<sup>67</sup> This and the following categories are not to be understood as rigid classes into which every existing lexeme can be neatly categorized. Just as in any natural language, prototypical, clear-cut examples as well as borderline cases exist. For the purpose of this study it is necessary to establish certain simplifying categories in order to be able to characterize the findings and make generalizations which lead to new insights into language.

bine only rarely. Examples of lexemes analysed as noun + verb compounds are *to handcraft* or *to skymrite*; adjective + verb combinations are, for instance, *to softland* or *to dry-clean*, and *to stirfry* or *to spraypaint* can be interpreted as verb + verb compounds.

Another 15 lexemes do not fall into one of these categories, but are rather unprototypical cases of V+N or V+A compounds (e.g. *to jump rope* or *to vouchsafe*). However, these carry no weight compared to the overwhelming majority of the other classes. Therefore, they will not be analysed in detail as the present study aims at answering the research question for the whole class of verbal compounds, thus prioritizing prototypical cases in order to be able to generalize the results to the whole class.

### 5.2.2 Temporal structure

The well-known difference between stative and non-stative (or active) verbs was discussed in 4.1.7. For the analysis, all lexemes have been classified in one of Vendler's four groups. Here, it is important to distinguish whether the verb as a whole has the nature of a state, accomplishment, etc., or only the verbal constituent in isolation. In some cases there is a divergence, i.e. *to sit* in isolation generally is a state, whereas *to babysit* is an activity. However, in the majority of cases there is an agreement. For the following classification, the complex verb has been taken as a basis, as the focus is on the nature and underlying patterns of verbal compounds and not their parts. For the corpus as a whole the following distribution of temporal structures has been observed:


Figure 5.2: Overall distribution of temporal structures

Activity verbs seem to be particularly suitable candidates for forming a verbal compound. More than 56% of the corpus verbs denote some kind of activity (*to breakdance, to sunbathe, to ice-skate*), followed by accomplishments like *to deepfry* or *to downsize* (33%) and achievements like *to bellyflop* or *to bookmark* (9%). States are rarely found and represent less than 2% of the corpus. Examples fitting this class could be said to be *to daydream*, as the dreaming happens unconsciously, or *to singleparent*.

When asking a language user to list the first verbs that come to his mind, I was given the answers *to run, to write* and *to eat*, i.e. processes that are pursued in an active way. Thus, activities and accomplishments indeed represent prototypical verbs containing motion or change in time, in contrast to verbs like *to resemble* or *to like*. This may be one motivation that explains the above findings. Breaking the results down to the different word-classes of the first constituent provides us with the following figures:





Figure 5.3: Temporal structures according to morphological shape

It becomes obvious that the general tendency remains unchanged and thus the temporal structure seems to be largely independent of the word class of the first constituent, although there is a slight deviation within the group of A+V compounds. The representation of accomplishments is slightly stronger within this class, to the detriment of activity verbs. A fully satisfying explanation for this finding cannot be given at this stage. It might be speculated that whereas a nominal constituent particularly lends itself to defining where (Locative) or with the help of what kind of tool (Instrument) something is being done, an adjective might focus on the Manner, i.e. *how* something is being done or achieved. Given this situation, it is all the more interesting to learn how something could be *achieved*, rather than simply knowing how something is being *done*.

This aspect leads to the next level of analysis, in which the semantic relations between the constituents will be examined.

#### 5.2.3 Semantic relations

In chapter 4.1.4.3, I have defined the circumstantial roles that are assumed to be sufficient for a classification of all verbal compounds. These are Time, Locative, Manner, Instrument, and Causality. For the reasons given in the above chapter, circumstantial roles are expected to be particularly prone to enter a combination with a verb. To give a first overview, participant roles like Theme or Patient have also been included here. This rather unexpected occurrence of participant roles will be dealt with separately in chapter 5.2.3.2. The results of the corpus analysis are as follows:



Figure 5.4: Participant and circumstantial roles

Fig. 5.4 disregards V+V combinations, which make up 9% of the whole corpus, as they are coordinative. With regard to the distribution of semantic roles, we can observe a clear preponderance of circumstantial roles, which represent 84% of the corpus. Thus, the vast majority of verbs indeed displays circumstantial relations like Time (e.g. *to daydream*), Locative (*to sunbathe*), Manner (*to dry-clean*), Instrument (*to handwash*) or Causality (*to clearfell*).

A short remark concerning the allocation of roles is in order: The idea that semantic roles cannot always clearly be defined is not new. Since some relations are interpretable as either one or another, the lexemes in question have simply been assigned to both, if there have been no arguments strongly favouring one of the alternatives. To give an example, the relation between the constituents in *to machinewash* could be either said to be instrumental or locative. A similar case is *to* 

*flashflood*: Does the meaning stem from the phrase 'to flood in a flash, i.e. in a short instant' (Time) or could it be paraphrased as 'quick as a flash' (Manner). An ultimate decision is hard to make, which is why such compounds have been counted in both groups. Considering the fact that compounds condense information, i.e. can give several pieces of information simultaneously, this finding seems to be natural to some degree.

# 5.2.3.1 Types of circumstantial roles

First of all, I would like to address the circumstantial relations, which are numerous indeed. The relative distribution of the different relations within the total of 84% of circumstantials is rendered in detail in the diagram below:



Distribution of Semantic Relations (Circumstantials)

Figure 5.5: Overall distribution of circumstantial relations

The corpus analysis provides evidence that the five relations shown in Fig. 5.5 are sufficient to account for all circumstantials attested in the corpus. Locative, Manner and Instrument are the predominant roles, while Time and Causality are less significant. Some of these relations are understood in a broad sense and therefore have been observed to subsume several subroles. The Locative category subsumes the subroles Location (where does something take place?) (to waterski), Direction (to backcomb), Path (to airmail), Source (to lipread) and Goal (to bellyflop). The subrole Location has been attributed to the vast majority of Locative-lexemes. Within the class of Time-relations we can distinguish the subroles of (temporal) Location (to springclean), Frequency (to double click) and (temporal) Direction (to backdate). Finally, Causality can be split up into the Reason (to forceland), the Purpose (to joyride) and the Result (to clearfell) of the action. However, the more general five roles given in Fig. 5.5 are sufficient for this study, which is why the subroles will be disregarded and all verbs that display one of the Locative-related subroles will be labelled 'Locative', etc.

If we separate A+V compounds from N+V compounds in order to attain a more detailed picture, some differences do, of course, surface. A comparison of Fig. 5.6 with Fig. 5.7 shows that the Manner-relation is strongly predominant in the class of A+V compounds and less for N+V compounds<sup>68</sup>. Moreover, instrumental relations cannot be found for A+V compounds. These findings are not very surprising, since adjectives cannot possibly name instruments, but at the same time lend themselves to denoting how an action is being carried out, and thus, they need no further explanation.

<sup>68</sup> A minimal deviation in the figures is due to the classes of V+A and V+N compounds, which have been excluded here but are present in Fig. 5.5.



Distribution of Circumstantial Relations (N+V)

Figure 5.6: Distribution of circumstantial relations for N+V combinations



Distribution of Circumstantial Relations (A+V)

Figure 5.7: Distribution of circumstantial relations for A+V combinations

Examples of N+V compounds exhibiting the semantic relation of Time are to springclean, to winterfeed or to daydream. Lexemes like to speedread or to catnap have been treated as Manner-relations. The Instrument is indicated in to fingerspell or to spoon-feed. In the group of

A+V compounds, lexemes like *to sweet-talk* or *to drycure* have a Manner-relation. Causality can be found in *to blindfold* and *to rightsize*.

These results indicate that the formation of VPCs seems to follow a natural logic, which means that—at least with regard to these groups of circumstantial roles—no particularly irritating and inexplicable constraints have been found up to this point. There seems to be a preference for N+V compounds, which reflects the general preference of nominal compounding in the English language and thus is not particularly striking.

The tendency displayed in Fig. 5.5 above remains stable if we consider the distribution within the whole corpus, i.e. including participant roles and coordinatives, as Fig. 5.8 shows.



#### Semantic Relations

Figure 5.8: Distribution of semantic relations (participant and circumstantial roles)

Up to this point, I have disregarded one rather astonishing finding, which had not been anticipated as such: The fact that a considerable number of participant roles, i.e. almost 16%, were found in the corpus is particularly striking, since it had been assumed that only circumstantials of the outer type can enter a compound. The participant roles discovered in the corpus include Theme, Patient and Agent roles. In the diagram above, Theme and Patient have been

combined as they both denote 'Object-roles', although this term is somewhat awkward as it refers to the level of syntax rather than semantics, thus naming clause constituents rather than semantic relations. However, for the following discussion, this classification will turn out favourably, and therefore they will be treated jointly.

# 5.2.3.2 Pseudo-compounds with incorporated participants

Contrary to the initial assumption, there is a considerable number of lexemes which could not be assigned a circumstantial relationship, but could only be analysed in terms of a participant relation. The distribution of a total of 16% of participant roles in the corpus is as follows:



Figure 5.9: Overall distribution of participant roles

The overall majority is formed by what has been called Object-roles, i.e. Theme and Patient-relations. Examples are *to cherypick*, *to gift-wrap*, *to headhunt*, *to jobshare*, or *to name-check*. At first sight, the nonverbal constituent can readily be interpreted as the direct object of the verbal constituent. Similarly, some Agent/Force-relations like *to tailormake*, *to studentteach*, *to winterkill* or *to frostbite* have been detected as well, in which the first constituent seems to function as the subject. The existence of these lexemes, which cannot be ignored as insignificant exceptions to the rule since their number is too large, seems to contradict our above-mentioned hypothesis according to which participant roles are unsuitable for operating as first constituents of a verbal compound. This finding is all the more remarkable given that examples like *to \*fisheat* or *to \*cardrive*, which incorporate the direct object, are prime examples in linguistic literature for naming impossible cases of verbal compounds. In order to align this finding with my theory, the above VPCs will be examined in order to find similarities which might distinguish them from such hypothetical verbs as *to \*fisheat* or *to \*cardrive*, which obviously are not conventionalized in Standard English.

Breaking down a verb like *to gift-wrap* into its constituents, it can be stated that *wrap* in general is transitive; the same goes for *pick* in *to cherrypick* and *hunt* in *to headhunt*. If we now follow the initial assumption and interpret the first constituents, i.e. *gift, cherry* and *head*, as taking on the function of the direct object of these transitive verbs, this would imply that, consequently, the complex lexeme as a whole would become intransitive, since the direct object would already be realized within the lexeme.

Oddly enough, however, this is not the case. The majority of lexemes found in the corpus is still transitive or at least has both transitive and intransitive meanings, i.e. they realize their direct object in the sentence outside the verbal lexeme. Of all the lexemes that fall into the object-category, only 10% are attested as obligatorily intransitive (e.g. to bargain-hunt (OED, s.v. 'bargain, n1') or to fox-hunt (OED, s.v. 'fox-hunt, n')). The remaining ones are either clearly transitive or can be used both transitively and intransitively, as shown by a variety of example sentences in the OED online, the LDOCE and Google. The verb to gift-wrap is illustrated by the sentence People [...] pile them [cars] up with gift-wrapped presents (OED, s.v. 'gift, n'), which at first sight even seems to be tautological since it contains both gift and presents next to the verb wrap. However, it becomes clear that the grammatical direct object is the one that is realized outside the compound. To give another example, to cherrypick is present in the sentence Music consumers are cherry-picking songs like Shaggy's It Wasn't Me', not downloading whole albums (OED, s.v. 'cherry-pick, v'), where song is the actual direct object of the verb.

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Some further examples (adapted from the OED online) are presented in the table below (emphasis added, the underlined passages denoting the direct object):

to air-condition	If the air coming into the house is too warm to use as a convective cooling medium for people inside then one solution may be to passively <b>air-condition</b> <u>the air</u> before it enters the house; The trustees of the National Gallery will discuss a scheme <b>to air-condition</b> <u>the gallery</u>
to breathtest	We will <b>breath-test</b> <u>people</u> when necessary
to cherrypick	Others are doing more 'cross-shopping' from store to store, cherry-picking <u>the specials</u> ; It did not want the whole team, preferring <b>to</b> cherrypick <u>the stars</u>
to copyedit	To <b>copy edit</b> <u>a tape</u> , the selected material is recorded to a make-up tape
to headhunt	<u>Mr Bullock</u> was <b>headhunted</b> from Flymo to revive Neill
to name-check	<u>The film</u> was <b>name-checked</b> by several youthful suspects picked up on murder charges in the mid-90s
to namedrop	The chapters are fact thick (he <b>name-drops</b> over 500 <u>play and film titles</u> )
to sightsee	Meet the chefs, inspect kitchens, plus <b>sightsee</b> <u>the</u> <u>highlights</u> from Cortina to Rome; I spent the day <b>sight-seeing</b> <u>Berlin</u>
to slavedrive	Corporal Hemmings again supervised the gymnasium- work today. He <b>slave-drove</b> <u>us</u> as usual
to windowdress	Nobody will let us near a shop to <b>window dress</b> on Saturdays; The cheque was part of an elaborate fraud designed to <b>'window-dress'</b> <u>the balance sheet</u> of a troubled banking company

Table 5.2: Examples of transitivity of VPCs

These examples argue for the fact that the first constituent of the complex verb no longer carries the full meaning it would have in isolation. A phrase like *to air-condition the air* (OED, s.v. 'air-condition, *v*') strongly supports this finding. A similar effect can be found in *he name-drops over 500 play and film titles* (OED, s.v. 'name-drop, *v*') or *to sightsee the highlights* (OED, s.v. 'sight-see, *v*').

A similar phenomenon can be found in *to kidnap, to shepherd* or *to steeplechase*, all of which are highly lexicalized. The first constituents differ semantically from their usage in isolation. Even though *kid* in *kidnap* suggests a reference to children, the verb can also be used to refer to any person, no matter whether adult or not (OED, s.v. 'kidnap, v'). To shepherd<sup>69</sup> has a literal meaning, i.e. 'to tend, guard and watch sheep', as well as a figurative one, in which the first element of the compound metaphorically denotes the people or animals watched over, as in *The waiter shepherds his assistants along with him into the hotel by the kitchen entrance* (OED, s.v. 'shepherd, v'). Finally, *to steeplechase* was formerly used to denote a race proceeding across a country where obstacles had to be cleared, a church steeple being the ultimate goal of the race. In today's usage, the meaning of *steeple* has completely faded and the verb now means 'to ride or run on a course furnished with artificial obstacles' (OED, s.v. 'steeplechase, n').

I would therefore argue that the first constituent of these lexemes only surfaces as the incorporated direct object, whereas the actual one has to follow the complex verb in the sentence, if the verb is used transitively. This is in line with Cho (2002, 77), who also notices that direct objects cannot be incorporated. The first constituent of the complex verb, e.g. *gift, cherry* or *head* in the examples *gift-wrap*, *cherrypick* and *headhunt*, is in reality a specification, modification or figurative characterization of the actual grammatical object, or describes a specific, prominent part of it. *Gift* describes the nature of the wrapped article, namely, its function as a gift; in *to cherrypick* no cherries are being picked, but the items are metaphorically characterized as cherries meaning the 'best parts' of something; and *head* in *to headhunt* is used metonymically to refer to a specific part (the head as the most important part) of the grammatical direct object, namely,

<sup>69</sup> The reduced vowel in the first constituent is normal (OED, s.v. 'shepherd, n').

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the "hunted" person. Even the intransitive *to carbo load* can be explained this way, with *carbo* referring to the principal element of the food being "loaded".

The few cases interpreted as Agent or Force-relations can be explained in the same way. Example sentences (adapted from the OED online) are the following (emphasis added):

to henpeck	An uxorious gentleman, who is sometimes a little <b>henpecked</b> by his wife
to frostbite	My wife up, and with Mrs. Pen to walk in the fields to <b>frost-bite</b> themselves; Many winters have <b>frost-bit</b> my hair
to tailormake	If you haven't yet got central heating, an Esso Chartered Installer will <b>tailor-make</b> a complete system to suit your needs; We were asked to <b>tailor-make</b> the hall for the LSO's needs
to winterkill	The grain very rarely <b>winter-kills</b>

Table 5.3: Agent and Force-relations in VPCs

Thus, the first constituent only surfaces as the Agent. At first glance, *to frostbite* could be interpreted as 'the frost bites', *to tailormake* as 'a tailor makes', and so on. However, as becomes clear, the grammatical subject is a different one. In the above examples, the wife *henpecks*, winter *frostbites*, an installer *tailormakes*, and *winterkill* can even be used reflexively.

Coming back to the object-relations: A further interesting finding concerns lexemes that can be used both transitively and intransitively. In more than one case it has been found that those lexemes have two clearly distinct meanings, a literal and a figurative one. For *to windowdress* the OED provides the following descriptions: In its intransitive usage it can be paraphrased as 'to arrange and display goods to the best advantage in a shop-window', while it has a completely figurative meaning as a transitive verb: 'to give a falsely favourable impression of the facts; esp. the arrangement of a balance-sheet so as to suggest that the business concerned is more prosperous than it is' (both OED, s.v. 'window, n'). The same can be said of the verb to slavedrive. Used intransitively, it means 'to exploit slave labour; to demand hard or servile labour', while as a transitive verb it means 'to demand an excessive amount of work from (a person)' (both OED, s.v. 'slavedrive, v'). In contrast, many verbs that can only be used intransitively have one meaning only. To fox-hunt, to carbo load, or to bargain-hunt can only be used in one specific context, i.e. the sportive or shoppingrelated context respectively. What can be concluded from these observations is that there is a strong tendency that constituents that superficially look like participants in general are not participants in the valency structure of the complex verb. Whether these findings can be said to follow a general rule remains to be examined in a more detailed analysis. In a next step, however, I would like to draw attention to another highly interesting aspect, which has already been presented from a theoretical viewpoint in chapter 3.3.2, namely, word-family effects.

#### 5.2.4 Word-family effects

It has already been indicated above that word-family effects (WFE) play an important role in word-formation processes. The term 'word-family effect' is used to refer to the fact that constituents seem to appear systematically in several lexemes and form some kind of a network. This is supposed to facilitate understanding and the formation of new lexemes. The meanings of lexemes linked by word-family effects support each other, which naturally constitutes a rich source for new words.

According to Cho (2002, 82), word-family effects are present as soon as at least two instances can be found in the language. Of 642 lexemes 384 exhibit word-family effects in the first constituent, which equals 60% of the whole corpus. Eliminating all instances where the first constituent is present in two lexemes only (65 in total), since the word-family effects are supposedly weak in them, still leaves 40% with comparatively strong effects (three or more related lexemes in the corpus) in the first constituent. The distribution of first constituents that occurred more than two times in the corpus is as follows:

1st constituent	# of lexemes	1st constituent	# of lexemes
back	21	crash	3
hand	21	custom	3
double	17	dog	3
dry	10	drop	3
air	9	field	3
finger	7	fine	3
house	7	fire	3
down	6	gang	3
fly	6	high	3
free	6	hot	3
body	5	job	3
colo(u)r	5	jump	3
side	5	mass	3
test	5	pin	3
water	5	quick	3
belly	4	sand	3
cold	4	sight	3
dead	4	single	3
fast	4	sky	3
head	4	slip	3
rough	4	spot	3
soft	4	strip	3
time	4	sun	3
brain	3	type	3
captive	3	whip	3
chain	3	wire	3

Table 5.4: Frequency of first constituents in the corpus

If we examine the word-family effects of the second, i.e. verbal, constituents the effects are even stronger: Of a total of 642 corpus lexemes, 433 show word-family effects in the second constituent.

This means that 67% of all lexemes have a verbal second element that is connected to other verbs in the corpus. If we only consider those verbal elements that occur in more than two lexemes, the effects are still remarkably high, namely, 49%, which exceeds the number given above for the first constituents by almost 10%. The following picture results:

2nd constituent	# of lexemes	2nd constituent	# of lexemes
dry	12	pick	4
test	11	print	4
stitch	10	surf	4
feed	9	train	4
jump	9	weld	4
mark	9	write	4
dance	8	blast	3
walk	8	broil	3
wash	8	cross	3
cast	7	cure	3
hop	7	date	3
lift	7	dip	3
read	7	drive	3
check	6	fire	3
dive	6	fish	3
hunt	6	fuck	3
step	6	harden	3
talk	6	haul	3
clean	5	lash	3
freeze	5	light	3
lock	5	nurse	3
shoot	5	paint	3
stamp	5	plate	3
start	5	play	3
stroke	5	punch	3
bomb	4	roll	3
break	4	saw	3
comb	4	shift	3

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4	shop	3
4	snop	5
4	sit	3
4	skate	3
3	tie	3
4	trot	3
4		
	4 4 4 3 4 4	4 shop 4 sit 4 skate 3 tie 4 trot 4

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Table 5.5: Frequency of second constituents in the corpus

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In order to illustrate this further, it is helpful to discuss some examples. The verb *to dry-clean*, for instance, can be analysed as a compound consisting of the constituents *dry* and *clean*. The first constituent is present in other lexemes like *drycure*, *dryharse*, *dryhave*, *dryfire*, etc. The second constituent, *clean*, in turn, is realized as a head in lexemes like *vacuumclean*, *steamclean*, *springclean*, and *houseclean*. If we randomly choose another constituent, the chances of finding further lexemes that are linked is very high. Thus, there are *housebreak*, *houseguest*, *househunt*, *housekeep*, *housesit*, and *housetrain*, all sharing the first constituent. The following picture illustrates these interconnections:



Figure 5.10: Network of word-family effects I

The above network could be extended at will, as most of the corpus verbs are connected to other lexemes in some way. Another example confirms this impression and further illustrates the dimension of word-family effects:



Figure 5.11: Network of word-family effects II

It becomes clear that word-family effects create a dense network, with the different lexemes supporting each other. Thus, Cho's (2002) statement discussed in 3.3.2 has been confirmed in my analysis. WFE indeed seem to be a highly important variable, which needs to be examined further. Some constituents almost seem to appear systematically in several lexemes. Antonyms like *to drynurse – to wetnurse* appear more than once. There are *to hardboil – to softboil, to singletongue – to doubletongue.* The underlying principle that motivates pairs like *to softland – to crashland* also seems to be the same.

At first glance the semantics also seems to be similar, which would mean that WFE crucially facilitate the interpretation of such interconnected verbs and, consequently, also the formation of new ones. The specialized meaning of *-hop*, for instance, is the same in all verbs in which it occurs: 'to move/change from one to another', hopping being understood in a metaphorical sense. The same can be said of *-sit*, which is present in lexemes like *to babysit* or *to housesit*. This phenomenon is even more pronounced in cases where several lexemes cover a whole thematic field, e.g. the field of stroke techniques in swimming: there are, for instance, *to backstroke, to breaststroke, to breaststroke*. Another example comes from the field of sewing, with verbs like *to backstitch, to chainstitch, to whipstitch,* and several others denoting the different stitching techniques.

These interconnections, both on the morphological and the semantic side, are too strong to be explained as accidental occurrences, so it can be assumed that word-family effects definitely constitute a strong motivation for new words<sup>70</sup>.

### 5.2.5 Concept of newsworthiness

One of Lipka's levels of analysis has not been considered yet, namely, an independent semantic analysis of the corpus verbs. This level, as mentioned above, is meant to go into detail about aspects like lexicalization or figurative meaning. Before carrying out the corpus analysis, it was already observed that lexemes like *to babysit, to daydream* or *to slavedrive* are specialized in meaning in a certain way. A paraphrase treating them as endocentric compounds cannot render their full meaning: *to babysit* is not only 'to sit near a baby', it includes various other aspects, e.g. 'in the absence of its parents', 'to look after it', etc. Similarly, *to daydream* is best paraphrased as 'to *act as if* dreaming during the day', and *to slavedrive*, as discussed in the previous chapter, is metaphorical as well. Thus, it seems that many, or maybe even all, verbal compounds display a certain degree of lexicalization. This would not be a surprising finding, for the economy of the lexi-

<sup>70</sup> For related ideas see Bybee (1985).

con prohibits entries with redundant meaning. As has been thoroughly discussed from a theoretical point of view, the existence of a compound in addition to a seemingly parallel syntactic phrase must be justified by some additional meaning, which cannot be deduced from the combination of the constituents' meaning.

The analysis of the corpus lexemes yielded two particularly obvious aspects. First, a huge number of lexemes were found to be technical terms stemming from different technical jargons and denoting procedures in a production process or specialized operations. One example is to shrinkwrap, which denotes the process of 'packaging an article by causing a thin plastic film to contract around it so as to cling tightly to its surface' (OED, s.v. 'shrink-wrapping, n'). Another example is to stripmine. In this special mining method 'surface material is removed in successive parallel strips to expose the mineral' (OED, s.v. 'strip,  $n^{2}$ '). Further examples of technical terms are to captivebear, to caseharden, to coldweld, to diecast, to hotpress, to sandblast, to sandcast or to steamclean. Such terms seem to be motivated by their advantage of being short and concise. They are lexicalized right from the beginning and in general have only one-though strictly confined-meaning. To sandcast, for instance, is a term used in the jargon of founding and the OED offers one meaning only: 'to make (a casting) by pouring molten metal into a sand mould' (OED, s.v. 'sand-cast, v'). As terms like this are accessible to a very limited group of experts only, the high degree of specialization does not prohibit their formation. The advantages mentioned above seem to outweigh their unusual morphology and lack of transparency.

Apart from these technical terms, which are highly lexicalized since they incorporate a large amount of condensed information, the remaining lexemes have been found to feature the most diverse characteristics. Some verbs are familiar to the average speaker (*to sunbathe, to sightsee, to babysit, to deepfry, to gatecrash*), whereas others are not even attested in the OED and had to be looked up in further sources to verify their meaning<sup>71</sup>. With regard to their meaning as well, the underlying patterns seem to be manifold. The general

<sup>71</sup> It has to be noted here that these might be instances of non-lexicalized expressions or even nonce-formations taken from Cho's (2002) corpus, which includes the *Broadcast News*, the *Berliner Korpus* and the *Time Korpus*.

finding confirms that all verbs are lexicalized to a greater or lesser degree. The sum of the constituents' meaning is never sufficient to render the full meaning of the compound. This non-compositionality, as has been stated, is a general characteristic of compounds in English. However, in contrast to nominal compounds, which combine readily in the English language, verbal compounds in particular seem to need a special reason to exist next to a syntactic phrase. The principle of relevance or newsworthiness (see chapter 3.2) seems to be the underlying motivation. In general, two major reasons have been found that render a lexeme newsworthy and thus justify its existence.

The first characteristic found in many lexemes is a *figurative element*, which is in general metaphorical or metonymical. A great number of the corpus lexemes exhibit figurative language of some kind. As is often the case, metaphoricity in general is a gradual phenomenon, ranging from only slightly metaphorical lexemes, which are not particularly striking since they are ubiquitous in everyday life (e.g. *team player* in the context of working life), to highly creative expressions that can often be found in newspaper headlines or advertising. With regard to the corpus analysis, there are highly metaphorical verbs, in which the lexeme as a whole is to be understood figuratively. Additionally, there are also cases in which only one constituent is figurative.

The corpus contains both lexemes in which the first constituent is metaphorical, as well as examples with a figurative second constituent. An example of the former is the verb *to sweet-talk* ('to flatter, per-suade', OED, s.v. 'sweet-talk, *v*'), consisting of an adjective and a verb, in which the first constituent is used metaphorically. *Sweet* as an adjective relates to flavours and the taste of some substance and is defined as 'pleasing to the sense of taste' (OED, s.v. 'sweet, *adj*'). In its metaphorical sense it can thus be interpreted as having the meaning 'pleasing to the ear, mind and feelings'. Similarly, in *to ghostwrite*, which consists of a noun and a verb, the first constituent is not meant in its literal sense, but represents a metaphor, in which the person writing is compared to a ghost—due to his/her remaining unnamed or "invisible".

Not only the first, but also the second, i.e. verbal, constituent can be used in a figurative sense. In to sunbathe the verbal constituent is slightly metaphorical, since one does not literally bathe. The rays of the sun are thus conceptualized as liquid material surrounding the whole body exposed to them, as if immersed in water. The resulting states are positive in both senses: clean or tanned skin respectively. The contained metaphor is rather weak however, with the whole lexeme being highly conventionalized and therefore not particularly remarkable. A similar example is to frostbite. Here, the pain caused by intense cold is compared to that after having been bitten. This metaphorical use of to bite makes us conceptualize frost as a ferocious animal. A euphemistic sense comes into play when analysing the verb to shoplift. Basically it denotes the process of stealing goods from a shop (OED, s.v. 'shoplift, v'). As the act of stealing consists of, but is not fully characterized by the lifting of goods, we are facing a metonymy, which at the same time has a weakening effect.

The next example also contains a metonymy in the first constituent and a metaphor in the second, thus illustrating the possibility of combining both in one lexeme. *To carbo load* denotes an activity usually to be seen in the context of athletics, namely, the eating of food which is high in carbohydrates (OED, s.v. 'carbo-load, v'). The first constituent is a metonymy insofar as carbohydrates are contained in the food that is being consumed. In this context, they constitute the essential, most important characteristic of the food. The second constituent *load*, in turn, is a metaphor denoting the action of eating. With reference to the large quantity of food being eaten, the body is conceptualized as a container, which is being loaded with food in order to increase—in this case—the carbohydrates.

An even more striking, though at the same time highly frequent expression is *to headhunt*. Just like the above example, it contains both a metonymical and a metaphorical element. *Head* metonymically denotes the "hunted", i.e. sought, person, by referring to the crucial part, since the head is conceptualized as the location containing skills, talent and intelligence—qualities that are particularly interesting for every employer. What is special in this example is that the lexeme as a whole has a literal sense going back to the practice of collecting human heads as trophies, common among certain primitive peoples (OED, s.v. 'head,  $n^{12}$ ). Thus, in contrast to the preceding example, a whole scenario is evoked, which is then mapped to the target domain of recruitment processes.

A similar phenomenon can be observed in verbs like *to cherrypick* 'to choose the best parts of something', *to cradle-rob* 'to be/fall in love with a much younger person', *to gatecrash* 'to enter an event without being invited', but also in *to tonguetie* 'to bar someone from speaking' and *to sugarcoat* 'to make something superficially pleasant', where the lexeme as a whole has a metaphorical meaning, which is mapped on to the target domain.

It has often been noted that a lexeme has both a literal and a metaphoric meaning, both of which are still in use. *To sugarcoat*, for instance, can also be used in its literal sense. The same is true for lexemes like *to spoon-feed* or *to earmark*. In its literal sense the former simply means 'to feed (a baby) with a spoon'. However, it also has a widespread metaphorical usage in which the spoon-feeding of food metaphorically stands for the action of providing information easily, as if for a baby, in small portions. The latter example, *to earmark*, even has three related meanings. In its literal usage it denotes the marking of animals as a sign of ownership or for identification. In a figurative sense, it can be used to refer to the process of marking anything, not just animals, as one's own by some kind of sign. Eventually, in its last sense, *mark* is metaphorical as well, since it means 'to decide that something (e.g. money) will be used for a particular purpose' (OED, s.v. 'ear-mark, v').

Up to this point, lexemes have been discussed which have a figurative meaning present in either one or both constituents. Moreover, cases have been distinguished, in which one or both constituents are simply understood in a figurative manner, from lexemes, which evoke a metaphorical situation as a whole. One further aspect that has been touched upon in the context of word-family effects (chapter 5.2.4) concerns the semantics of constituents that systematically appear in more than one lexeme. One group of verbs interconnected by WFE is the one with *dry*- as the first constituent. Although in *to dryfarm* 'to farm without a good supply of water' (OED, s.v. 'dry farming, *n*'), *dry* is used in more or less its

literal sense, it can also be given a metaphoric reading 'lacking some characteristic or essential element'. This figurative sense of *dry* is also present in verbs like *to dryfire, to dry-wall, to drynurse, to dryheave*, etc. In the first example, the firing takes place without ammunition, the result of *dry-walling* is a wall built without mortar (OED, s.v. 'dry wall, *n*'), and so on.

A similar phenomenon can be discovered in the group of verbs starting with *cold*-. The literal meaning of *cold* is present in *coldsweat* and *coldweld*, for instance. *Cold welding* describes a welding process in which two elements are combined without preparatory heating. Basically the same underlying idea can be found in *to coldstart*, which denotes the starting of a system, e.g. a computer or the engine of a vehicle, without a preparatory warming-up. This meaning of 'lack of preparation or preliminary performance' (OED, s.v. 'cold, *adj.*') is particularly strong in *to cold call*, which means 'to sell goods or services by making unsolicited calls on prospective customers' (OED, s.v. 'cold-call, *v*').

Finally, I would like to consider the verbs to whitewash, to greenwash and to blackwash. The first one has a more or less literal usage, meaning 'to plaster over a wall, etc. with a white composition' (OED, s.v. 'whitewash, v'). Therefrom, the figurative meaning 'to conceal, to free from blame or taint' (OED, s.v. 'whitewash, v'), and consequently the far more specialized one, 'to clear from liability for his debts' (OED, s.v. 'whitewash, v') emerged. In this metaphor, the process of washing removes the dirt, i.e. all negative facts. By applying a layer of white colour, the surface appears free from blemishes. To greenwash has been formed in analogy, containing the same negative connotation. It not only denotes the process of concealing facts, but metaphorically adds a coat of green colour, green being the colour of vegetation and thus symbolically representing environmental responsibility. To blackwash, finally, in its figurative sense, is defined as 'to blacken the character of; to cast aspersions, disparage' (OED, s.v. 'blackwash, v'), black traditionally being the most negative colour or that symbolizing evil.

This last group of examples is particularly well suited to illustrate the interdependencies between the different lexemes. Knowing the meaning of one verb, e.g. *to whitewash*, makes it easy to derive the others. Thus, it can be concluded that word-family effects are not purely morphological, but influence the semantics of a lexeme as well. Since the meanings support each other, the understanding, and probably also the formation of new lexemes, are considerably facilitated.

In addition to figurative language, a second characteristic has been found to account for the newsworthiness of many lexemes. The following examples illustrate what will be called 'deviation from the norm'. What is interesting in these cases is that the word describes an activity that is particularly newsworthy because it is in evident contrast to what would probably be expected. The verb to dry-clean, for instance, highlights the fact that something is cleaned in a very new and special way, namely, without using water, and at the same time distinguishes the process of dry-cleaning from a normal cleaning process. To clean immediately evokes the concept of water. Thus, it is hard to imagine that a verb to \*waterclean would be formed, since the meaning would almost be tautological. It could also be said that a prototypical cleaning process includes the use of water, or at least some liquid detergent. It is therefore precisely the non-prototypical elements72 that seem to be particularly newsworthy and thus suitable for entering a composition. Prototypicality, however, is related to frequency of occurrence (Börger 2007, 123). In fact, for the formation of a compound, it does not suffice that the verb denotes a nonprototypical activity; this activity at the same time needs to be of some importance for a sufficiently large group of people in order to be relevant at all. Similar examples from this context of cleaning are to steamclean and to vacuumclean.

Another example concerns the activity of reading. In a prototypical reading process, the reader scans written letters on paper, for example books or newspapers, mostly for the purpose of gathering information or simply as a means of relaxing. Less prototypical is the reading done from other sources, e.g. one does not usually read from someone's lips or mind. It is exactly these activities, however, that, in a more or less metaphorical sense, are verbalized in *to lipread* and *to* 

<sup>72</sup> For an introductory reading on Prototype Theory, see Rosch (1973), Aitchison (1987) or Lakoff (1987).

*mindread*. Similarly, *to speedread* focuses on the rapidity of the reading process, an aspect which is usually not essential.

Quite the same phenomenon can be observed in several verbs ending in -feed. The corpus contains examples like to bottlefeed in contrast to to breastfeed. Especially with respect to babies, the bottle is generally regarded as a substitute, since very young children are usually fed at their mother's breast. This motivates the formation of to bottlefeed, which might in the beginning have been meant to express distinctness from the general verb to nurse. However, the verb breastfeed exists as well, in order to distinguish it from alternatives and probably also for reasons of highlighting the natural practice, since bottle-feeding is widely popular, which renders breast feeding special again. Thus, the earliest recorded date of bottle-feeding according to the OED (s.v. 'bottle,  $n^{2}$ ) is around 1865, whereas a lexeme for the activity of breast feeding is not attested until 1903 (OED, s.v. breast, n'). The list of lexemes denoting different kinds of feeding processes could be extended, since there are also to formulafeed, to spoon-feed, to handfeed, to forcefeed, to dripfeed, and so on. What they all share is the characteristic of denoting a very special kind of feeding, which justifies their existence as a complex verb.

What already becomes clear at this stage is that the different criteria, i.e. figurative meaning, word-family effects, lexicalization and non-prototypicality, are not to be regarded as distinct phenomena, but are highly interconnected. In general, several aspects are combined in one and the same lexeme, as in *to mindread*, which is at the same time metaphorical, deviant from a normal reading process and exhibits word-family effect in the second constituent.

Cleaning, reading and feeding are quite general everyday activities, which naturally allow for a variety of different specifications. Examples containing some more specific activities are, for instance, *to forceland, to speed-dial* or *to waterski*. Most landings take place in an orderly fashion, according to schedule. If an airplane pilot faces some unexpected circumstances, the forced landing process is all the more newsworthy, since it is in striking contrast to a regular one. Similarly, *to speed-dial* and *to waterski* are two rather self-explanatory cases, since normally, all the digits of a telephone number have to be pressed successively, which renders the method of speed-dialling special. The

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same is true for *to waterski*, since the location for skiers is generally on snow-covered mountains rather than on water.

All these examples have shown that the concept of newsworthiness is a quite fuzzy one, since it is not easy to come up with exhaustive categories defining when a certain state of affairs is newsworthy. What seems to be true in any case is that a certain degree of lexicalization is necessary. The complex lexeme, e.g. *to dry-clean*, comprises a lot of information, like 'to clean without using water', 'with the help of chemicals', 'used for clothes and fabrics', etc. Thus, it is quite a complex concept, the meaning of which cannot be rendered by a simple paraphrase. Additionally, two aspects have been found to play a particularly important role, namely, figurative language and deviations from the norm. Considering the high number of lexemes attested in the corpus and an apparent systematicity in the distribution of these phenomena, I have assumed that they are crucial for the formation of verbal compounds. The following questionnaire study will try to test whether these assumptions are well-founded.

As an interim summary it can be stated that the corpus analysis provided the criteria that are necessary for the formation of verbal compounds. The intent was to gain a detailed picture of the underlying structure and patterns of verbal pseudo-compounds. These can then be taken as a starting point for an examination of genuine verbal compounds to find out about their differences: Given the same underlying structure from a formal point of view, what distinguishes the pseudo-compound verbs from genuine ones that can explain why the latter do not exist?

The corpus analysis offers valuable clues as to which combinations could be theoretically possible (at least as VPCs) and has suggested a number of characteristics that underlie compound verbs. We can summarize that the following aspects seem to be preconditions of potential verbal compounds:

- a) the number of morphemes is restricted, and short lexemes are strongly preferred;
- b) N+V compounds form the majority;
- c) in theses cases the modifier needs to be realized in the singular;
- d) activity verbs are prototypical cases of VPCs, whereas states hardly exist;

- e) with regard to the semantic roles, exclusively circumstantial relations between the constituents have been found; grammatical objects as part of the compound are thus excluded as impossible;
- f) word-family effects play a crucial role, the extent of which will be examined;
- g) newsworthiness seems to be the general precondition with two aspects being predominant in the corpus: figurative language and deviations from the norm.

These characteristics can also be regarded as constraints, which narrow down the scope of potential lexemes. To give some examples, a lexeme to \*fisheat 'to eat fish' is not a potential compound, since it incorporates the direct object. A verb to \*table-eat can be given a locative reading 'to eat at the table' and would therefore fulfil the criterion of a circumstantial relationship. However, it is fully predictable from its constituents and has no newsworthiness at all, as it does not contain any additional semantic value compared to its syntactic paraphrase. A lexeme like to \*coldvisit, to give a last example, seems to be more reasonable, since it has a circumstantial (Manner) relation and at the same time describes an unusual, newsworthy kind of visiting. What is more, it has a metaphoric component, cold meaning 'unannounced, without prior invitation', and is also linked to other lexemes by its first constituent cold. An existing lexeme is, for instance, cold selling 'the selling of goods or services by means of an unsolicited approach to prospective customers' (OED, s.v. 'cold selling, n'), which might enhance the acceptability of the lexeme to \*coldvisit. The following table summarizes these ideas:

	Circumstantial	News-worthi- ness	Word-family effects
to *fisheat	_	_	_
to *table-eat	$\checkmark$	_	_
to *coldvisit	$\checkmark$	$\checkmark$	$\checkmark$

Table 5.6: Supposed criteria for potential VPCs

Therefore I would assume that there are combinations of lexemes which have greater chances of being accepted than others. Circumstantial relations, figurative language, deviations from the norm and word-family effects seem to be the dominant criteria, which can be regarded as preconditions for genuine verbal compounds, or at least as facilitating their comprehension. And it is this hypothesis that the following chapter will attempt to confirm with the help of a questionnaire study. If the results support this assumption, a large amount of possible formations can be ruled out, which could bring the answer to the research question within closer reach. However, even if all these conditions are met, the question of why genuine verbal compounds nevertheless do not exist remains. It is hoped that the following study can also provide some further evidence in this area.

# 6 Questionnaire study

The corpus analysis discussed in the preceding chapter can be regarded as an intermediate step on the way to answering the research question, since it serves as the basis for a further examination of verbal compounds. Up to this point, a fully satisfying answer to the question of why verbal compounding is not a productive wordformational process could not be given. However, the analysis of VPCs that surface as genuine compounds has been very fruitful and provided promising results. Based on the observations that have been made, a number of statements concerning impossible combinations can be made. It has also been argued that certain criteria seem to have a positive effect on the formation of verbal compounds. These criteria are focused on in the following questionnaire study, which aims at testing the hypotheses that arise from the corpus analysis. Fictitious test lexemes, which are systematically compounded according to specific patterns, will be tested for their acceptability and comprehension.

# 6.1 Hypotheses and variables

The hypotheses that are supposed to be tested with the help of the questionnaire will be presented in the following section, before introducing in more detail the variables necessary for the study.

# 6.1.1 Hypotheses

The lack of productivity of genuine verbal composition is a truly odd phenomenon. As has been shown in the preceding chapter, there are obviously even differences within the group of verbal pseudocompounds, since they cannot be combined at will either. Having singled out some seemingly advantageous conditions for VPCs, it will now be interesting to find out if these patterns also turn out to be favourable for genuine verbal compounds. In order to learn whether some combinations indeed have higher chances of entering the lexicon (and being acceptable with regard to form and meaning is a reasonable starting point), potential verbal compounds have been formed. These have the same underlying structure as the corpus lexemes, the difference being that they do not exist. The knowledge about the structure and patterns underlying VPCs in combination with insights about how they are being processed and the way they are being understood by language users might eventually facilitate answering the overriding research question. This questionnaire study therefore builds on the results of the corpus analysis and aims at testing the following central hypotheses:

(16)

First Hypothesis:

Independently of further characteristics, genuine verbal compounds (GVCs) yield a lower acceptability than those derived from existing adjective or noun compounds (VPCs).

For the questionnaire, both GVCs and VPCs have been invented. Genuinely compounded are lexemes like *to \*spongeclean*, since the English languages does not contain the noun *\*spongecleaning* or *\*spongecleaner*, nor an adjective *\*spongecleaned*. This verb differs from a fictitious *to \*side order*, which is also not attested as such in the OED or other common dictionaries, but is a zero-derivation from a homonymous noun und therefore not genuinely compounded.

Derivations, provided that they fulfil the general criteria of 'wellformedness', are strongly assumed to achieve higher rates of

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acceptability, because this word-formational pattern is one that actually exists in the English language, in contrast to genuine verbal composition. Moreover, the existence of a related noun or adjective compound and the corresponding concept might foster the need for the verbal expression as well. For instance, the existence of the noun *side order* might suggest a related verb to denote the activity of ordering something as a side dish in a restaurant. Furthermore, it will also be of interest to see which test lexemes receive a better rating and from which characteristics this advantage can ultimately be deduced. Also with regard to comprehension, derived lexemes are expected to be more likely to trigger meaning paraphrases than nonderived ones, since they might in general be attributed a higher likelihood to exist.

The second major hypothesis concerns the word-family effects and reads as follows:

(17)

Second Hypothesis:

Verbs displaying word-family effects yield a higher acceptability than verbs with new constituents, 'new' being all those constituents which have not been found to be connected to others via analogy in the corpus.

It was demonstrated that word-family effects interconnect a high number of different lexemes into a dense network which facilitates understanding due to related meanings of the constituents (see Fig. 5.10 and 5.11). It is therefore expected that also novel compounds which contain constituents that are already present in existing lexemes are more likely to be assigned a reasonable meaning than completely unrelated formations. A lexeme like *to \*watertest*, which is strongly embedded in word-families, as there are *to flighttest*, *to roadtest*, *to markettest*, *to fieldtest*, and several others, is assumed to have a somewhat higher tendency of being accepted.

With regard to comprehension, it is assumed that word-families have a positive effect on the test lexemes. It is likely that participants will find it easier to imagine a semantic paraphrase for compound verbs with WFE than for those without WFE. To go one step further, it might also be suggested that lexemes with WFE adopt the semantic relation underlying their analogous counterpart from the corpus. In *to handfeed, to handwash* and *to handwrite* the semantic relation between the constituents is instrumental. It might therefore be hypothesized that this relation will also be adopted for novel formations with *hand-* as the first constituent.

The third major hypothesis focuses on the criterion of newsworthiness:

(18)

Third Hypothesis:

Newsworthy verbs yield a higher acceptability than verbs without any kind of newsworthiness.

As was already indicated earlier, newsworthiness will be confined to figurative language on the one hand and deviations from the norm on the other. Although newsworthiness can, of course, surface in many ways, these two aspects will be focused on in order to be able to systematically test to what extent they influence novel formations and yield significant results.

With regard to the third hypothesis, it might be important to make some finer distinctions about whether the lexeme in question is a GVC or a VPC. GVCs with some kind of newsworthiness, as defined above, are expected to yield a higher acceptability than transparent lexemes without any additional meaning components. When it comes to VPCs, the discrepancy between particularly newsworthy and less newsworthy lexemes will probably be less significant, due to the fact that the lexemes are derived. As has been argued, the status of being derived is supposed to be strong enough to ensure a higher degree of acceptability of the lexeme in general.

In addition to these three major hypotheses, two further aspects will be examined; they concern the context provided and the native language of the participants. The following hypotheses will be tested:

(19) Decontextual versus contextual: Verbal compounds which are embedded in a sentence will yield a higher acceptability

than lexemes presented in isolation, since it is assumed that the context facilitates understanding.

(20) American versus British English: Native speakers of American English are expected to be more likely to rate verbal compounds acceptable than native speakers of British English.

It has been mentioned in chapter 2.1.2 that speakers of British English are said to be more reluctant to accept verbal pseudocompounds than speakers of American English. Whether this is also true for genuine verbal compounds will be examined in the following.

#### 6.1.2 Independent variables

For the questionnaire study discussed below and a systematic method of analysis, it is necessary to distinguish independent variables from dependent ones. Independent variables are those parameters that will be selectively modified in order to find out how dependent variables change as a result.

The independent variables, i.e. the criteria that are expected to influence the outcome and will be taken as the basis for the following study, are the criteria derived from the preceding corpus analysis. The different criteria are indicated in Table 6.1 below. Not all of them will be subject to an individual analysis, but will be treated rather as preconditions for the test lexemes. The analysis of lexemes like to *\*international-driving-license-obtain*, for example, would not vield promising results, since the corpus analysis provided evidence for the fact that compounds or even phrases cannot be constituents of a verbal compound; neither can grammatical objects, plural forms in nominal elements, and so on. The first three aspects of Table 6.1 will therefore serve as preconditions that define the basic structural shape of the test lexemes. Aspects 4 to 6 will also be predefining to a certain extent, since the corpus analysis already displayed strong tendencies with regard to prototypical VPCs. The following analysis will therefore employ test lexemes displaying the same patterns that underlie the majority of VPCs examined in the corpus. These are mostly noun + verb combinations with the temporal structure of activities or accomplishments, and are also lexicalized to a certain degree.

A strong focus will be on the remaining variables 7 to 11, which are supposed to play a crucial role with regard to the success of the test lexemes. The presence of these variables in the test verbs will systematically be varied to measure their influence on acceptability and comprehension.

#### Independent variables

- 1 modifier: singular versus plural
- 2 morphologically simple versus complex constituents
- 3 modifier: circumstantials versus participants
- 4 temporal structure (aktionsart)
- 5 morphological shape (N+V, A+V, V+V)
- 6 lexicalization
- 7 deviation from the norm
- 8 figurative language
- 9 word-family effects
- 10 genuinely compounded versus derived
- 11 context provided (decontextual versus sentence context)

#### Table 6.1: Overview of independent variables

The criterion of newsworthiness, as mentioned above, will be assigned particular importance, with, however, a strong focus on two aspects, i.e. figurative language and deviations from the norm. Wordfamily effects are the second major parameter to which fictitious lexemes will be tailored. Moreover, fictitious compounds will be cross-checked with derivations, which are also part of the investigation, and the contextual situation will be considered as well.

#### 6.1.3 Dependent variables

The manipulation of independent variables like WFE or newsworthiness (NW) is assumed to have certain effects on the dependent variables. Two dimensions will be considered: acceptability and comprehension. The related methods of testing will be rating and paraphrasing tasks respectively. Thus, participants will be asked to judge whether the test lexeme in question sounds acceptable to them and rate it on a four-point scale from *completely unacceptable* to *acceptable*. The resulting statistics are expected to provide an overview of lexemes which have been rated with a higher acceptability than others. A subsequent examination of the underlying patterns might then produce a selection of the factors influencing the acceptability, in order to find out which combinations have a higher possibility of being accepted than others.

The comprehension test aims in a different direction. By asking subjects to paraphrase the lexemes, two aspects can be examined. First, it is interesting to see whether participants do come up with a paraphrase at all, which would indicate that the lexeme can be assigned meaning. Secondly, insights into *how* the compound word is understood can be gained as well. Without the task revealing this aim, the paraphrases show whether participants assign metaphoric meaning to the lexeme, or whether the relation between the constituents is understood in a circumstantial manner, etc.

This study is not exhaustive, of course. Further aspects, like an active usage of the test lexeme, could be tested as well, e.g. by asking participants to use the word in a sentence. Given the limitations of the present book, I will exclusively concentrate on the first two variables. Furthermore, the unnatural situation of a questionnaire study would certainly not yield reliable results with regard to natural language production.

Fig. 6.1 summarizes the different variables that will be tested and combines independent and dependent ones:
Increasing acceptability

	<u> </u>			
			Lexen	ne
	Derivation	(no	/	yes)
Independent			and	
variables	NW	(no	/	yes)
			and	
	WFE	(no	/	yes)
	In context	(no	/	yes)
↓ tested on		$\downarrow$		
Dependent	ac	ceptabili	ty	
variables	com	prehens	ion	comprehension

Figure 6.1: Combination of independent and dependent variables

Two major groups of lexemes will be tested, namely, genuine compounds and derived lexemes. For each group there will be both newsworthy and less newsworthy lexemes, as well as verbs exhibiting WFE and verbs without WFE. All of these lexemes will be tested in isolation, as well as embedded in a context, both with regard to acceptability and comprehension (black arrows). The results will indicate how the dependent variables—acceptability and comprehension—change. However, only lexemes in isolation will be tested for comprehension, as the sentence context would already anticipate a particular meaning. The dashed arrows reflect the hypotheses given above, as they indicate the direction in which acceptability is expected to increase.

## 6.2 Methodology

After having determined what is intended to be tested, this section will concentrate on the methodology, i.e. how the above hypotheses were tested. For the purpose of examining the characteristics of genuine verbal compounds, potential lexemes exhibiting the same structure as existing VPCs need to be formed. Subsequently, these lexemes will be tested in a detailed questionnaire study.

## 6.2.1 Data

Three different types of verbs form the basis of the questionnaire study. To recall the different groups of lexemes, the following three subtypes that have already been presented are the ones below:



Figure 6.2: Different types of verbal (pseudo-)compounds

The two major groups of lexemes to be tested are possible GVCs and potential VPCs. Additionally, some established pseudo-compound

verbs from the corpus were used as distractors. These represent a category of lexemes which should be accepted by native speakers and also serve the purpose of adding some natural sounding verbs to the set of test lexemes, most of which are marked to a greater or lesser degree.

Test lexemes of the different kinds have been invented according to the structure underlying existing VPCs. Not just any combination of two free lexical morphemes is sufficient since the test lexemes need to display the independent variables of 6.1.2, but contrast in the extent to which these different criteria surface. A total of 74 different lexemes were invented. These can be subdivided into 36 VPCs and 35 GVCs. Three distractors, which are taken from the pool of corpus lexemes, were added. All of the test lexemes were then further distinguished according to whether they display word-family effects and some kind of newsworthiness. Combining these criteria provides the following four groups:

-WFE/-NW	lexemes displaying neither word-family
	effects nor any kind of newsworthiness
-WFE/+NW	lexemes displaying no word-family effects,
	but newsworthiness
+WFE/-NW	lexemes displaying word-family effects, but
	no kind of newsworthiness
+WFE/+NW	lexemes displaying both word-family
	effects and newsworthiness

Table 6.2: Four groups of test lexemes

This subdivision serves to ensure that the whole range of possible constellations is included. The questionnaire thus comprises both lexemes that are expected to yield very low degrees of acceptability and verbs that might have chances of being accepted by the participants. Acceptability is roughly expected to increase from the first group (-WFE/-NW) to the last (+WFE/+NW). The criterion of newsworthiness has further been broken down into 'figurative language' and 'deviation from the norm', in order to enable a comparison at some later stage. The four different variables

Word-formational pattern	GVC vs. VPC
Newsworthiness	-WFE/-NW -WFE/+NW
Word-family effects	+WFE/-NW +WFE/+NW
Context	isolation vs. sentence context

according to which the test lexemes need to be distinguished are listed below:

Table 6.3: Relevant independent variables

Gathering a reasonable number of lexemes which do not yet exist in the English language and at the same time fulfil the above criteria, while simultaneously achieving a fair balance of all the groups, was a tricky task. To be certain about their status, all the lexemes were cross-checked with regard to their existence in the OED and the LDOCE. In the formation process of VPCs, it was confirmed that at least one derivation basis (compound noun or adjective) is attested in one of the dictionaries. An interesting finding to be mentioned here concerns the fact that quite a number of lexemes that had been formed according to the different criteria-in particular metaphoric language and word-family effects-in the process of cross-checking were found to actually be attested in one of the dictionaries, although they are not present in my corpus. If the most frequent constituents of the corpus are combined into a new compound, there are chances that this lexeme might already exist. To air-escape, to freeplay, to sundry or to sleeptalk all contain relatively frequent constituents and are indeed attested in the OED. The same is true for verbs containing metaphors like to hen-cackle, to timekill or to penny-pinch, which were combined or derived with the aim of creating a fictitious lexeme, but do indeed already exist. This finding can be taken as a first indicator of the relevance these criteria really seem to have in the process of formation.

The existence of word-family effects was measured by the distribution of constituents among the corpus lexemes. Also the number of lexemes sharing the same constituent was taken into account, e.g. the constituent *hand*- is present in 21 corpus verbs, whereas *lip*- was found in two lexemes only. It might therefore be possible that the word-family effects in the former are stronger than in the latter.

To measure the influence of the criterion of context, all the lexemes were embedded in a sentence. They were contrasted with the verbs in isolation in the acceptability task to find out whether the presence of a context has a significant impact on novel verbal compounds. The following tables give an overview of the different test lexemes<sup>73</sup>:

-WFE/-NW	-WFE/+NW	+WFE/-NW	+WFE/+NW
-wFE/-NW cardpay knife-open rumour-spread shame-lie table-eat	-wFE/+INW couchsleep stick-discipline charm-snare fear-bleed friendpile trust-gamble weed-sow	+WFE/-NW airtest coldeat colourtaste eyeread flypick hand-eat mashfeed massarrive spongeclean watertest windowcheck	+wFE/+NW bellykick colourcook crutchwalk fingercomb floorsit headplunge airstroll coldvisit headpeck househop schoolhop
			timecut

Table 6.4: Genuine verbal compounds for the questionnaire study

<sup>73</sup> The asterisk indicating a non-existing lexeme will be neglected here, since the test verbs have, of course, not been marked as such.

-WFE/-NW	-WFE/+NW	+WFE/-NW	+WFE/+NW
fabric-soften garden-party potato peel purpose-build stamp-collect sticker-price	beauty-sleep comfort-eat food-poison pillsleep curtain-raise foot-drag lion-tame shotgun-marry	air-freshen figure-skate guestwork hand-kiss hand-signal hand-stamp laser point nametape side order window-clean	handstand mudbathe speed-date stickwalk stone-wash clod-hop earshoot face-save fire-eat homespin palm-read question-fire

Table 6.5: Derived verbal compounds for the questionnaire study

Additionally, the existing VPCs to cherrypick, to sunbathe and to handwash were used as distractors. In terms of figures this means that 49% of the test lexemes are GVCs and 51% are VPCs, i.e. derived. Word-family effects are present in 63% of lexemes. With regard to newsworthiness, 45% are classified as -NW, whereas 55% have a metaphorical meaning component or denote some kind of deviation from the norm. Many of these lexemes seem odd at first sight. However, it has to be stated that the majority of verbs is not expected to have a significant chance of entering the lexicon of the English language. Given the markedness of verbal pseudo-compounds in general, these fictitious lexemes are even supposed to be felt to be particularly striking and odd. However, to see whether some combinations do work, if only slightly better than others, is interesting enough to justify this analysis.

The number of test lexemes increases to the right in Table 6.4 and 6.5. This is due to the fact that the last two groups of lexemes in particular are expected to be the ones yielding the highest acceptability rates. From what we know from the corpus analysis, lexemes which are neither newsworthy nor benefit from word-family effects (-WFE/-NW) are probably dismissed at once. In contrast,

some lexemes of the last type (+WFE/+NW) may have chances of yielding a higher acceptability rate since they display some kind of newsworthiness and take advantage from existing analogous formations. To see whether such lexemes, which superficially fulfil all the requirements a successful verbal compound obviously needs, indeed have higher chances of entering the lexicon is what this study is interested in. Therefore, the number of lexemes of these groups is somewhat higher. As will be seen below, this does not influence the statistical significance of the results.

It becomes obvious that the pool of test lexemes we have at our disposal comprises all different kinds of verbs with regard to their likelihood of being accepted. At one end there are lexemes like *to \*table-eat*, which probably have the smallest chances possible of being accepted. At the other end are the distractors, which do actually exist and therefore should be accepted. In between, there are those cases which are expected to provide valuable insights, since they comprise the characteristics that are supposed to be essential for the formation of verbal compounds.

One remark about semantic relations should be added: In order to make the test lexemes as prototypical as possible, the underlying semantic relation is in the overall majority of cases one of those three that have been found dominating in the corpus, i.e. Locative, Manner and Instrument. Especially with regard to GVCs, this was done in order to exclude the unwanted side-effect that the test lexeme in question might fail due to its semantic relation rather than because of some variable that is intended to be tested.

With regard to orthography, the most systematic approach possible has been adopted. For VPCs the orthography of the base noun was maintained, e.g. to \*beauty-sleep is written with a hyphen, analogously to the noun beauty-sleep, as recorded in the OED (s.v. 'beautysleep, n'). For the non-derived test lexemes which exhibit wordfamily effects, the spelling of the related corpus verbs was taken as a starting point. For example, corpus verbs ending in *-hop* are consistently written as one word (*barhop*, *tablehop*, etc.) which is why the test verbs to \*househop and to \*schoolhop display the same written form. In less clear cases, the majority spelling form was taken as a basis. In completely unrelated cases of GVCs, the least confusing and subjectively most logical spelling was chosen, i.e. avoiding two consecutive vowels, etc.

In the next step, the test lexemes formed according to the principles defined above were systematically embedded in a questionnaire with the help of which the hypotheses were tested.

## 6.2.2 Questionnaire

A total of 74 lexemes that needed to be tested a) with regard to their comprehension, b) with regard to their acceptability in isolation, and c) with regard to their acceptability embedded in a sentence results in 222 individual questions. Testing them in one single questionnaire would have led to problems, not only with respect to the time needed to complete it, but also because of the fact that each item would appear repeatedly within one questionnaire, which would influence the results. Therefore, they were divided into three separate questionnaires, each containing a test lexeme only once in only one of the categories. In order to achieve this, the 74 lexemes of Table 6.4 and 6.5 were evenly distributed to three different groups A-C, which appear in the questionnaire as follows:

	Question- naire 1	Question- naire 2	Question- naire 3
Comprehension:	Group A	Group B	Group C
Acceptability			
(decontextual):	Group B	Group C	Group A
Acceptability			
(contextual):	Group C	Group A	Group B

Table 6.6: Distribution of test lexemes

This procedure ensured that eventually all test lexemes were tested in all three categories to allow a later comparison, while at the same time appearing only once per questionnaire. Moreover, each participant completed one questionnaire only.

In the first part of the questionnaire the fictitious lexemes were tested with regard to comprehension, and the participants were therefore asked to paraphrase the lexeme in question. They were offered two alternative options, but were also free to actively produce their own meaning paraphrase. There were no restrictions in the constellation of the answers given, thus for lexemes that did not seem reasonable to the participant, no option at all had to be chosen. In unclear cases it was possible to tick both options, and an additional comment could be given independent of whether one of the predefined alternatives had been chosen or not. The two offered alternatives were formulated as distinctly as possible, while at the same time maintaining a plausible meaning. To give an example, for the lexeme to \*spongeclean the alternatives 'to use a sponge for cleaning something' (Instrument relation) and 'to remove dirt from a sponge' (Theme relation) were offered. This part of the study intends to examine whether metaphorical meanings are preferred over literal ones, if circumstantial relations yield a higher acceptability than participant relations, and if word-family effects have a significant impact on both the way the lexeme is understood (e.g. does it take over the semantic relation of its base noun?) and the likelihood of being assigned meaning at all.

In the second part, the lexemes were tested for acceptability. They were given alternately in isolation, i.e. decontextually, and embedded in a sentence context; in each sentence the verb was underlined. Participants were asked to rate the test lexemes on the following four-point scale:

	=	This word/sentence sounds completely unacceptable.
-	=	This word/sentence sounds rather unacceptable.
+	=	This word/sentence sounds slightly odd but could
		possibly be used.
++	=	This word/sentence sounds acceptable/I could
		imagine it being used.

Table 6.7: Response options

All sentences and paraphrases were proofread by a native speaker of British English to ensure that the test lexemes were embedded in sentences that were as natural as is possible for this kind of enquiry. In some cases of VPCs the definitions of the base nouns were taken and adapted from the OED online or the LDOCE to yield a verbal meaning paraphrase. In the last section of the questionnaire, the participants were asked to provide some personal data concerning their age, nationality, native language and field of profession, the last in order to take into consideration possible previous knowledge of linguistically trained students.

The survey was carried out by means of an online questionnaire. Visiting the website activated an automatic random redirection to one of the three sub-questionnaires<sup>74</sup>.

## 6.2.3 Participants

To yield reliable results, only native speakers of English were considered possible candidates. The questionnaire was spread according to the snowball effect, thus in a first step contacting the immediate environment, while at the same time encouraging the participants to forward the link to the questionnaire. In doing so, people with a variety of social and professional background could be reached, which positively influences the composition of the data. The completed questionnaires were transmitted anonymously without allowing me to make any conclusion about the participants.

<sup>74</sup> The three questionnaires can be found in the appendix.

A total of 108 native speakers of English participated, among which were 58 speakers of American English, 46 speakers of British English and 4 speakers of Australian English. The average age was 38.5 years, the youngest participant being 17 years old, the eldest 82. The questionnaires were assigned at random and the distribution is relatively balanced with 35 completed forms of the first questionnaire, 34 of the second and 39 of the third.

The subjects were provided with a small amount of information concerning the purpose of the study. It was titled 'Questionnaire on English Verbal Compounds' and it was indicated that the usage of complex English verbs was being studied, while at the same time pointing out that there are no right or wrong answers, but rather the 'gut feeling' is of interest. In the following section, I would like to present the results of this study in detail.

## 6.3 Results

Two different data sets result from the questionnaire study, namely, one from the comprehension task, where participants were offered meaning options among which they were supposed to choose the most plausible one(s), and a second one from the acceptability task, in which lexemes were rated on a four-point scale. The data collected in the 108 questionnaires was analysed according to the following schema: In the comprehension task, each time an alternative was chosen, it was assigned the value of 1. The sum of the different meaning options could then be compared to each other. Comments that were actively produced by participants needed to be analysed individually. In the acceptability task, the four-point scale was decoded as follows:

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	receives the value	-2
-	receives the value	-1
+	receives the value	1
++	receives the value	2

Table 6.8: Decoding of response options

After having calculated the median on the basis of the data collected, the degree of acceptability could be located for each test lexeme, with the highest possible acceptability rate of 2 and the lowest possible of -2. Since independent variables like WFE or NW do not occur in isolation, but a test lexeme does exhibit several at once, after collecting the data the results were statistically evaluated in that the measurable effects of their interdependence were removed, in order to be able to individually assess the influence of each variable on the acceptability of the lexeme. The statistical data analysis was carried out using the SPSS Ordinal Regression Procedure including random person-specific effects (Link function: Logit)<sup>75</sup>.

To give a brief survey, in the acceptability task the rating on the four-point scale lead to the following distribution of results:

Rating	Percentage
completely unacceptable ()	37.1%
rather unacceptable (-)	21.1%
odd but possible (+)	21.9%
acceptable (++)	20.0%

Table 6.9: Distribution of rating options

Thus, of all the answers given almost 60% were negative in that they rated the test lexeme either as 'completely' or at least as 'rather

<sup>75</sup> I would like to thank the *Statistisches Beratungslabor* of the University of Munich, Institute for Statistics, for statistical consulting.

unacceptable'. Given that GVCs and VPCs are evenly distributed, the above figures indicate a general negative rating tendency. This corresponds to what was expected, since we are dealing with novel and highly marked lexemes. The following section presents the detailed findings with regard to the different hypotheses.

## 6.3.1 Results on hypotheses

Table 6.10 shows the estimated coefficients. Those labelled 'Location' are the coefficients for the independent variables tested in the questionnaire. Before the results on the three major hypotheses are presented, I would like to briefly discuss the two minor assumptions regarding the influence of context and the difference between American and British English.

			Parameter ]	Estimates				
							95% Confid	ence Interval
		Estimate	Std. Error	Wald	df	Sig.	Lower	Upper
Threshold	[Ans = -2]	-1.886	.078	589.327	1	.000	-2.039	-1.734
	[Ans = -1]	917	.074	153.590	1	.000	-1.062	772
	[Ans = 1]	.280	.074	14.516	1	.000	.136	.424
Location	[Nat=0]	135	.053	6.501	1	.011	238	031
	[Nat=1]	Oa			0			
	[Cat=0]	-1.354	.055	609.802	1	.000	-1.462	-1.247
	[Cat=1]	Оа			0			
	[Context=0]	081	.053	2.390	1	.122	184	.022
	[Context=1]	Oa			0			
	[WFE=0]	454	.055	67.453	1	.000	563	346
	[WFE=1]	Oa			0			
	[NW=0]	212	.066	10.415	1	.001	341	083
	[NW=1]	736	.072	103.837	-	.000	877	594
	[NW=2]	0a			0			
Link function:	: Logit.							

Table 6.10: Parameter estimates (Overview)

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a. This parameter is set to zero because it is redundant.

As to the former, it was assumed that context facilitates understanding and therefore compounds which are presented in the context of a sentence will yield a higher acceptability than lexemes presented in isolation. To test this hypothesis, all test lexemes were additionally embedded in a sentence, i.e. to \*hand-kiss was contextualized as 'He hand-kissed me goodbye and left', to \*hand-signal as 'I hand-signalled a left turn, but obviously he didn't see me. The next moment, I found myself in hospital', or to \*timecut as 'We had to timecut our meeting due to an intervening matter with an important business partner'. The independent variable 'context' is coded as follows: 0 = 'test lexeme in isolation', 1 = 'test lexeme in sentence context'. Contrary to what had been expected, context does not seem to be related to the degree of acceptability, since no significant difference could be determined between lexemes presented in isolation and lexemes embedded in a context. A fully plausible explanation for these results is not available at this time but may be attained by further analyses.

As regards the difference between American (AE) and British English (BE), the results are unambiguous. The coefficient for the variable labelled 'Nat' (short for 'native language'; coded 0 = British English, 1 = American English) is -0.135.<sup>76</sup>

Parameter	Estimate
[speakers of BE]	-0.135** (p = 0.011)
[speakers of AE]	()a

a. This parameter is set to zero because it is redundant.

The data shows that the coefficient for speakers of British English is negative, thus related to lower scores in the ranking. This means that the odds that a test lexeme is accepted by a speaker of British English are lower than for a native speaker of American English. Given the significance level of 0.011, there is a clear relation between the native

<sup>76</sup> In this model, the class of speakers of American English serves as a reference category, which is why the coefficient is 0.

language spoken by the participant and the degree of acceptability that is assigned to the test verb. Speakers of British English are less likely to accept a novel verbal compound than speakers of American English. Seen from the reverse point of view, i.e. how much more likely are speakers of American English to rate verbal compounds acceptable than native speakers of British English, the effect increases many times over:

Parameter	Estimate
[speakers of AE]	$e^{-0.135} = 0.874$

Independent of the characteristics of the individual lexemes and their underlying structure, the odds of accepting them are much higher for participants with American English as a native language than for speakers of British English, the coefficient being 0.874. Consequently, the prevailing assumption, which can often be found in linguistic literature on this topic, namely, that verbal compounds and pseudocompounds are more likely to exist in American English, has been confirmed by the data obtained in the questionnaire study.

In the following steps, the three major hypotheses will be discussed in detail. The *first hypothesis* concerns the difference between genuine and derived verbal compounds and was formulated as follows: Independently of further characteristics, genuine verbal compounds (GVCs) yield a lower acceptability than those derived from existing adjective or noun compounds (VPCs).

This assumption was confirmed, as the results indicate that GVCs indeed have only low chances of being accepted as proper English words. The category of GVCs (coded as Cat = 0 in Table 6.10) indicates negative effects of -1.354 in comparison to that of VPCs (coded as Cat = 1).

Parameter	Estimate
[GVC]	-1.354*** (p = 0.000)
[VPC]	()a

a. This parameter is set to zero because it is redundant.

The observed significance level shows that the characteristic of being genuinely compounded or derived is related to the ratings in that GVCs display a negative coefficient. In comparison to being derived, being compounded significantly lowers the odds of being accepted. Seen the other way around, there is a higher odds ratio for VPCs, which show positive effects of e<sup>-1.354</sup>=0.258. These results clearly indicate that GVCs inherently seem to have only poor chances of being accepted as proper English or even of being actively produced. VPCs, on the contrary, have somewhat better prospects. A closer inspection of individual lexemes shows that GVCs hardly ever receive positive ratings.

	Accep-	Compre-		Accep-	Compre-
	tability	hension		tability	hension
	task	task		task	task
		abstention			abstention
GVC	Median	rate (%)	VPC	Median	rate (%)
fear-bleed	-2	54.3	earshoot	-2	61.8
colourtaste	-2	52.9	pillsleep	-2	44.1
coldeat	-2	50.0	nametape	-2	11.4
windowcheck	-2	50.0	question-fire	-2	10.3
weed-sow	-2	48.7	guestwork	-2	7.7
airstroll	-2	47.1	stickwalk	-1	38.5
trust-gamble	-2	44.1	homespin	-1	29.4
massarrive	-2	40.0	curtain-raise	-1	23.5
stick-discipline	-2	37.1	garden-party	-1	20.6
timecut	-2	35.9	sticker-price	-1	17.1
eyeread	-2	34.3	foot-drag	-1	11.8
headpeck	-2	34.3	face-save	-1	10.3
shame-lie	-2	34.3	potato peel	-1	7.7
crutchwalk	-2	32.4	purpose-build	-1	2.6
table-eat	-2	32.4	food-poison	1	20.6
flypick	-2	31.4	clod-hop	1	20.0
mashfeed	-2	25.6	hand-kiss	1	14.3
colourcook	-2	23.1	laser point	1	8.6
charm-snare	-2	20.0	beauty-sleep	1	5.7
coldvisit	-2	20.0	side order	1	2.9
friendpile	-2	12.8	fire-eat	1	2.7
cardpay	-2	2.6	comfort-eat	1	2.6
floorsit	-1	38.5	air-freshen	1	0
			shotgun-		
airtest	-1	23.5	marry	1	0
knife-open	-1	20.6	window-clean	2	17.7
bellykick	-1	17.1	speed-date	2	8.8
headplunge	-1	5.7	fabric-soften	2	5.7
rumour-spread	-1	5.7	stamp-collect	2	2.9
schoolhop	-1	5.1	mudbathe	2	2.6
hand-eat	-1	2.6	figure-skate	2	0
couchsleep	-1	0	hand-signal	2	0

watertest	-1	0	hand-stamp	2	0
househop	1	22.9	handstand	2	0
spongeclean	1	0	lion-tame	2	0
fingercomb	2	0	palm-read	2	0
			stone-wash	2	0

Table 6.11: Average results of the questionnaire study

The above numbers in the second column (based on the results of the rating from the acceptability task) show the median for the individual lexemes. It cannot be concluded that these results stem solely from the fact of being genuinely compounded, but as a general tendency they clearly illustrate that VPCs have a better starting position for entering the lexicon. What is striking is that within the group of GVCs more than 60% are rated -2, which means they are regarded as completely unacceptable. 29% of lexemes receive slightly better, but still negative ratings of -1. Only three lexemes, i.e. 9%, do not fall below the negative mark and are accepted as possible lexemes, namely, *to \*househop, to \*spongeclean* and *to \*fingercomb*.

In comparison, the distribution among the VPCs is completely different. Only 14% of the lexemes fall below the mark of -1.00 and are rejected. 25% are judged as rather unacceptable, but 28% of lexemes are regarded as 'odd but possible'. A total of 33% of the test verbs are evaluated as acceptable lexemes. As a very general conclusion, there is a strong tendency of negative rating among GVCs and a rather strong tendency of positive rating to be observed within the group of VPCs<sup>77</sup>.

In addition to the acceptability task, the comprehension part of the questionnaire also provides valuable insights to the first hypothesis. A first indicator is the abstention rate, which is much higher for GVCs than for VPCs (see Table 6.11 above): Of all the participants only 10% abstained from choosing any meaning option linked to VPCs, whereas a total of 24% did not decide in favour of any alternative that was offered for GVCs. If we consider the individual lexemes,

<sup>77</sup> The distractors consistently achieved positive results with average ratings of 1.74 and better in the acceptability task and no abstention rate in the comprehension part of the questionnaire.

Table 6.11 clearly indicates that, apart from the two rather unsuccessful cases *to \*earshoot* and *to \*pillsleep*, the abstention rates for VPCs are relatively low in general, compared to the results for GVCs. What is also highly interesting is the strong correlation of rating values and the abstention rate for individual lexemes. Those lexemes with the worst rating results in general also elicited the highest level of abstention. Two thirds of the GVCs show double-digit abstention rates, whereas this phenomenon is much less pronounced for VPCs. For lexemes which have been attributed a high degree of acceptability, e.g. *to \*spongeclean, to \*fingercomb, to \*figure-skate* or *to \*palm-read*, the abstention rate equals zero.

With regard to the meaning paraphrases of the comprehension task, it is interesting to see whether GVCs are understood in a different way than VPCs. It is possible to maintain that for derived verbs the participants chose, without exception, the meaning of the base lexeme. This means that, for instance, to \*foot-drag has been understood in the same way as its base noun foot-dragging 'a deliberate delay or slowness' (OED, s.v. 'foot-dragging, n'), namely, as 'to deliberately delay something or be slow to do something', which was the alternative chosen by 97% of all answers given. The same can be stated for all other VPCs tested in the questionnaire, e.g. to \*shotgunmarry (81%), to \*curtain-raise (92%), to \*fire-eat (97%), or to \*stone-wash (97%), the numbers within the brackets indicating the percentage to which the meaning of the base lexeme was taken over. The remaining VPCs yield similarly clear results, the only two exceptions being to \*food-poison, which was rather understood in an active way as 'to deliberately poison food in order to harm someone', and to \*lion-tame, where the two alternatives offered (derived: 'to reduce the fierceness of a lion and render it docile', new meaning: 'to control and calm down exuberant kids or pupils') were equally well accepted.

When it comes to the meanings chosen for GVCs, the relatively high abstention rates show that totally new coinings often appear meaningless and it seems to be hard to assign a plausible definition when it is not possible to have recourse to a base lexeme. In this respect it might also be interesting to examine the paraphrases that were actively produced by the participants. Especially for GVCs, there are many comments reading 'makes no sense', 'I haven't heard of this one', 'this does not sound real to me' or 'does not work at all for me'. The frequency of such comments is striking: 81 of them were given for GVCs, but only 32 for VPCs. This again can be seen as an indicator for the fact that it is easier to assign meaning to a derived verb than to a completely new combination. All these results confirm the hypothesis that genuine verbal compounds yield lower rates of acceptability than derived ones. As has been shown, the mere fact of being compounded entails negative effects; however, further aspects like word-family effects, etc. play a role as well.

As a *second hypothesis*, it was assumed that verbs with word-family effects yield a higher acceptability than verbs with "new" constituents. In Table 6.10 above, the variable for WFE was coded as 0 = 'no WFE' and 1 = WFE. The survey confirms this assumption, as the results concerning acceptability are as follows:

Parameter	Estimate
[-WFE]	-0.454*** (p = 0.000)
[+WFE]	()ª

a. This parameter is set to zero because it is redundant.

Lexemes which are not embedded in word families display negative effects, the coefficient being -0.454. This means that irrespective of other parameters, the absence of word-family effects significantly lowers the odds of the test lexeme's being accepted. These effects, however, are even stronger if the reference parameter is set to [-WFE], where the estimated value is positive: e<sup>-0.454</sup>=0.635. Thus, the existence of WFE increases the odds of being accepted to an even greater extent.

A closer inspection of the three genuinely compounded lexemes with the highest acceptability, i.e. to \*househop, to \*spongeclean and to \*fingercomb, reveals that all of them have an extensive network. They yield good results, whereas verbs without such connection are accepted at a much lower rate. The first is related to actual lexemes like to barhop, islandhop, jobhop, tablehop and several others via its second constituent, and to lexemes like to houseclean, househunt, housekeep, *housesit*, etc. via its first one. Similarly, *to \*spongeclean* is analogous to other cleaning-verbs like *to dry-clean*, *to steamclean*, *to vacuumclean*, and so on. Even though it does not contain any particularly newsworthy meaning element, the rating is very positive<sup>78</sup>. The last example, *to \*fingercomb*, was particularly well accepted. Although it is not attested in any dictionary that was consulted, it is possible that it has already become part of the spoken language. The first constituent *finger-* is present in a number of verbs, e.g. *to fingerdry, to fingerpaint, to fingerpick, to fingerpoint*, and several others. Also the second constituent *-comb* can be found in *to backcomb, to drycomb, to finetoothcomb*, etc. Thus, word-family effects significantly influence the acceptability of the test lexemes.

With regard to the comprehension task, it was particularly interesting to see which semantic relations were preferred. In the case of VPCs which at the same time display word-family effects, the semantics of the base lexeme dominated potential word-family effects. As has been observed, the meaning of the derivation base was taken over by a majority. Therefore, a lexeme *to \*hand-kiss* receives a locative interpretation 'to kiss someone on the hand', although the constituent *hand-* is instrumental in the corpus lexemes. The instrumental paraphrase 'to stroke someone's cheek with the hand, to show affection' was not chosen as a potential meaning by any participant. Thus, word-family effects of individual constituents are in any case weaker than the meaning of the underlying base lexeme.

When it comes to GVCs, the results are mixed, although for test lexemes with strong WFE, the semantic relation was taken over by the majority. *To \*hand-eat* shares its first constituent with 21 corpus lexemes, in which it denotes the Instrument of the action carried out. The two meaning alternatives offered in the questionnaire are 'to eat without using cutlery, to eat with bare hands' (Instrument) and 'of tame animals: to eat straight out of a person's hand' (Locative). 84% of the answers given favour the first option. Similar results exist for *to* 

<sup>78</sup> The strikingly good results of *to \*spongeclean*, which received an average rating of 0.57 in contrast to other lexemes of the same group (+WFE/-NW), which received overall negative ratings, might also be due to the existence of the noun *sponge-bath*.

\*airtest. As was expected, of all the answers given, 65% preferred the Locative option 'to test something (e.g. a vehicle) in the air for functional efficiency' over the Theme-relation 'to test the air, e.g. with regard to oxygen content'. Also the second, i.e. verbal constituent, can be linked to word families. In corpus verbs ending in -clean, the first constituent always denotes the Instrument. 95% of all the answers given chose this relation for the test verb to \*spongeclean, rather than an objective one. The same can be said of to \*eyeread and to \*househop, and several other examples. As regards the former, the constituent -read usually exhibits a locative reading in relation to the first constituent, which was also preferred by 78% over an instrumental alternative. With regard to the latter, -hop is usually related to the first constituent by a locative relation, too. Thus, for to \*househop, the locative meaning 'to hop from x to y' was chosen by 100%. Although the results are not as clear-cut as in the case of VPCs, where the verbal meaning was almost without exception predefined by the meaning of the base lexeme, there is a relatively strong tendency to adopt the semantic relation of related lexemesas long as a plausible interpretation is maintained. There are some less clear cases like to \*crutchwalk, which received an instrumental interpretation by 56%, although corpus lexemes ending in -walk mostly express a Manner relation. Given that the instrumental interpretation 'to walk with the help of crutches, e.g. during recovery after an accident' seems to be far more plausible than the offered alternative expressing the Manner 'to move forward in an awkward way, as if one needed crutches', the proportion of answers preferring the latter (44%) is still astonishingly high, which seems to even more confirm the strength of effects of word-families. To give another example, the corpus suggests an instrumental reading for verbs ending in -feed. The test lexeme to \*mashfeed is linked to lexemes like to bottlefeed, to breastfeed, to handfeed, to spoon-feed, etc. Although the instrumental reading 'said of toothless people or after a dental surgery: to feed upon puréed food' is somewhat far-fetched, 52% of answers can still be attributed to it. The alternative option is a definition implying a fictitious technical term, in which the verb denotes a

'production step in brewing: to strain mash (=a mixture of ground malt and hot water<sup>79</sup>) into a brew pot for further processing'. The relatively high percentage of 48% also illustrates the readiness to accept verbal compounds in technical jargons.

The *third hypothesis* concentrates on the presence of newsworthiness and assumes that newsworthy verbs yield a higher acceptability than verbs without any kind of newsworthiness. As was indicated, I restricted myself to the criteria of metaphorical meaning and some kind of norm deviation, which were systematically tested as part of the survey. The classes of GVCs and VPCs were evaluated separately, with the variable NWbi (coded as a binary category with either 0 = no newsworthiness or 1 = newsworthiness) comprising both metaphors and norm deviations. At first glance, however, the results do not confirm the hypothesis:

Parameter	Estimate
[NWbi=0]	0.089 (p = 0.241)
[NWbi=1]	0a

a. This parameter is set to zero because it is redundant.

Table 6.12: Parameter estimates for GVCs

Parameter	Estimate
[NWbi=0]	0.319*** (p = 0.00)
[NWbi=1]	Oa

a. This parameter is set to zero because it is redundant.

Table 6.13: Parameter estimates for VPCs

<sup>79</sup> OED s.v. 'mash, n'.

The figures <sup>80</sup> indicate that neither for GVCs nor for VPCs does newsworthiness in general enhance the acceptability of the lexemes in question. On the contrary, lexemes without any apparent newsworthiness even yield higher acceptability rates, the coefficient being positive.

In a next step, the totality of all test lexemes is considered, i.e. derived and genuine, but metaphors are dealt with separately from norm deviations. By doing so, we acquire a more detailed picture. It becomes obvious that the presence of a metaphorical element lowers the odds of being accepted to an even greater extent than expected. The following figures (taken from Table 6.10, coded 0 = 'no NW', 1 = 'metaphor', 2 = 'deviation from the norm') provide a clear picture of the results:

Parameter	Estimate
[-NW]	-0.212*** (p = 0.001)
[+NW (metaphor)]	-0.736*** (p = 0.000)
[+NW (norm deviation)]	0ª

a. This parameter is set to zero because it is redundant.

Taking the parameter 'deviation from the norm' as a reference base, it becomes obvious that the acceptability is highest for lexemes which denote an activity that deviates from the normal procedure. Verbal compounds without any kind of newsworthiness produce negative effects, i.e. are less likely to be accepted. Up to this point, the data supports the initial hypothesis. What is extremely astonishing, however, are the results for metaphorical lexemes. Metaphorical elements—actually supposed to add some kind of newsworthiness to the lexeme and thus positively influence its acceptability—do not enhance the chances of being accepted, but severely reduce them.

<sup>80</sup> Note that statistical significance is not given in the case of GVCs (p = 0.241). However, since the results correspond to those of a manual analysis of the data, they are given here for a rough estimation.

Thus, the results only partly confirm the third hypothesis, namely, when it comes to norm deviations. Lexemes which denote some kind of deviation from the norm show positive effects with regard to acceptability and therefore work better than lexemes with simple circumstantial relations, which are not particularly noteworthy whatsoever. When it comes to metaphorically enriched compounds, however, the data did not support the hypothesis. They are even less well accepted than lexemes without any NW.

I would like to illustrate these findings with some examples. When the participants were asked to rate the acceptability of an unfamiliar coining, the presence of metaphorical elements negatively influenced the result. Thus, all GVCs containing a metaphor, e.g. *to \*weed-sow* (intended to mean 'put out a rumour, which subsequently spreads with immense rapidity'), yielded negative results and were rated -1.5 on average and worse. The reason may be that metaphorical elements in a GVC, which is already highly marked and unusual as such, obscure its meaning even more, and this makes it practically impossible for the reader to accept the word. Given the statistical data, even for derived lexemes like *to \*curtain-raise* or *to \*shotgun-marry*—which yielded slightly better though still negative results of -0.35 and -0.14 on average—it cannot be argued that this improvement stems primarily from the metaphorical components, but is rather due to their being derived.

When it comes to norm deviations, the hypothesis does not fail completely. The odds of their being accepted are slightly higher, and lexemes like *to \*speed-date* or *to \*mudbathe* yield positive results; even GVCs like *to \*couchsleep* show above-average ratings.

In the comprehension part of the survey, metaphorical meaning paraphrases were systematically tested against literal ones. When asked to choose between a figurative and a non-figurative option, a tendency to choose the figurative alternative was observed among the participants. Of all the GVCs tested, the metaphorical option was preferred over the literal one in 63% of all the answers given. However, this group of verbs showed a relatively high abstention rate of 32%. Since these lexemes also failed the acceptability test, their chances of being used are comparatively low. What is interesting, nevertheless, are comments that assuming that the word could exist, it would probably have a figurative meaning. For to \*weed-sow the following two options were offered: 'to put out a rumour, which subsequently spreads with immense rapidity' (figurative) and 'to grow weed, i.e. marijuana, for private use' (literal). One participant commented that although he/she had "never heard of this term before [he/she] wouldn't assume it has anything to do with [...] weeds". Also in the case of to \*trust-gamble, an alternative, in which gamble was used in its literal sense, was offered on contrast to a metaphorical one, in which gamble means 'to risk trustworthiness by doing unreflected things'. The figurative option exceeded the literal one, although participants showed a reluctance to accept this verb: "Never heard of it, but that [participant ticked the figurative option] would be my guess". Similarly, for to \*timecut the following comment was made: "I've never heard this term before, but would assume it has something to do with your hours at work being cut/pay cut". It becomes obvious that although metaphorically enriched lexemes failed in the acceptability task, figurative language does seem to play a role in the formation and comprehension of novel compound verbs. It seems likely that fictitious lexemes in isolation are too opaque to be assigned a plausible meaning; as soon as participants are presented with possible explanations, as was done in the comprehension task, the likelihood increases. This predominance of the metaphorical alternative only lasts as long as the test lexeme is not related to a derivation base. VPCs always derive their meaning from the underlying base noun or adjective (which can, but need not, be metaphorical as well).

A more detailed analysis of the meaning in the paraphrases provided by the participants reveals that metaphorical language does indeed play an important role in connection with verbal compounding. There is, however, a highly interesting difference between VPCs and GVCs in the associations that are triggered. In the former case, i.e. if a nominal or adjectival derivation base for the verb exists, it seems to be possible to come up with a metaphorical meaning, next to the derived one. To give some examples, the following paraphrases were offered for the VPCs *to \*garden-party, to \*mindow-clean* and *to \*figure-skate*:

VPC	Paraphrase
to garden-party	"to waste time when you should be having a constructive meeting"
to window-clean	"To make something look good superficially, i.e. content is crap, but it looks good"
to figure-skate	"to suggest a solution to a problem that looks/sounds good but is ineffective"

Table 6.14: Paraphrases for fictitious VPCs

These lexemes all yielded good results with the literal meanings derived from the underlying base nouns *garden-party*, *window-cleaner* and *figure-skating*. Nevertheless, some participants proposed highly creative metaphorical meanings like the above. Although these lexemes do not exist with the meanings proposed, they are plausible since the similarity is obvious. To expand on one example, in the first one the scenario of a garden-party is mapped onto the target domain of a working environment. In both contexts, participants meet people and are supposed to engage in a conversation. What is leisure time in one domain is conceptualized as wasted time in the other, since small talk is regarded as superfluous given the limited time and work under pressure in a business context.

These findings indeed correspond to a general phenomenon of verbal pseudo-compounds, which was observed within the context of the corpus analysis. Sometimes lexemes have both a literal and a metaphoric meaning that exist side by side. This was shown for *to sugarcoat, to spoon-feed* and *to earmark.* The above cases seem to be similar in that the lexeme as a whole is metaphorized on the basis of the non-figurative meaning derived from the base noun.

The associations triggered by GVCs, in contrast, differ crucially from the examples above. When there is no base lexeme available, obviously no verbal meaning can be derived from it. However, the comments made by the participants convey some highly remarkable findings:

GVC	Paraphrase/Comment
to coldvisit	"it sounds a bit like cold calling"
to headpeck	"a better phrase is to 'henpeck""
to timecut	"to speed something up // a short cut"
	"to create a time saving shortcut"
to floorsit	"babysit/housesit/dog sit = to look after that
	thing"
	"to look after someone else's floor while they're
	away (like babysit)"
	"To monitor an area"

Table 6.15: Paraphrases for GVCs

It is conspicuous that these lexemes seem to trigger new associations which do not stem from the meaning of the combination as a whole, but rather from one of its constituents. In *to \*coldvisit* the component *cold*- (interestingly in its metaphorical sense) evokes the concept related to *cold calling*. Similarly, in *to \*headpeck, to \*timecut* and *to \*floorsit* it is the second constituent that evokes concepts underlying lexemes like *to henpeck, shortcut* or *to babysit*. Thus, different from VPCs, it is not the lexeme as a whole that receives a metaphorical meaning, for, obviously, it is split into its component morphemes, which can then evoke concepts of related lexemes that share the respective constituent (WFE).

Combining these results with the observed low level of acceptability of genuine verbal compounds containing a metaphor, it seems that some kind of basis is needed, one which predefines the verbal meaning. Consequently, metaphorical elements do not categorically interfere with the acceptability of a verbal compound. On the contrary, they seem to play a crucial role, as long as there is some anchor lexeme, e.g. a derivation base or some analogous formation. This assumption is substantiated by the fact that first of all, VPCs perform far better than GVCs, but also the finding that the abstention rates are lower, and finally also by the comments discussed above. Thus, I would argue that while attempting to derive a plausible verbal meaning, the language user recurs to already existing base lexemes or analogous formations which sound similar and are related via word-family effects. Consequently, a successful meaning assignment presupposes a base concept. To summarize, these results all point to the fact that such lexemes are not processed as compounds, but function only by mentally recurring to an existing base concept, which triggers the verbal meaning. If no derivation base exists, constituents of analogous concepts form the base. These conclusions reflect the model of verbal compounds and pseudo-compounds introduced in chapter 4.2. It might therefore be promising to analyse some examples in detail, in order to confirm the validity of this model.

Before discussing the model in detail, I would like to summarize the findings for hypotheses 1–3. The results of the questionnaire study confirmed hypotheses 1 and 2. With regard to the third, the assumption was only confirmed for deviations from the norm, but cannot be generalized for metaphors. Combining the results of the acceptability rating indicates a trend that contrasts genuine and derived verbal compounds. The coefficients for the parameters of 'Category' (GVC vs. VPC), 'WFE' and 'NW' can be combined in order to calculate the values for the different groups of lexemes. The variables VPC, +WFE and +NW (Dev) serve as reference categories. The detailed results are as follows:

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Category	Calculation	Coef- ficient
GVC, -WFE/-NW	exp (-1.354-0.454-0.212)	0.133
GVC, -WFE/+NW (Met)	exp (-1.354-0.454-0.736)	0.079
GVC, -WFE/+NW (Dev)	exp (-1.354-0.454)	0.164
GVC, +WFE/-NW	exp (-1.354-0.212)	0.209
GVC, +WFE/+NW (Met)	exp (-1.354-0.736)	0.124
GVC, +WFE/+NW (Dev)	exp (-1.354)	0.258
VPC, -WFE/-NW	exp (-0.454-0.212)	0.514
VPC, -WFE/+NW (Met)	exp (-0.454-0.736)	0.304
VPC, -WFE/+NW (Dev)	exp (-0.454)	0.635
VPC, +WFE/-NW	exp (-0.212)	0.809
VPC, +WFE/+NW (Met)	exp (-0.736)	0.479
VPC, +WFE/+NW (Dev)	exp (0)	1ª

a. This category serves as a reference category

Table 6.16: Combined parameters

These results are represented graphically below:



Figure 6.3: Combined parameters

VPCs receive an overall better rating. Moreover, the acceptability can be observed to increase for lexemes with WFE and norm deviations (Dev). Metaphorical meaning (Met), as was discussed, has a negative impact on acceptability. The best results are available for verbal pseudo-compounds which exhibit word-family effects and denote a deviation from the norm (+WFE/+NW (Dev)). In contrast, genuine verbal compounds without word-family effects, but which contain a metaphor, yield the worst results (-WFE/+NW (Met)). An interpretation of the results also implies that word-family effects dominate the criterion of newsworthiness. Lexemes that are part of word families, but display no newsworthiness receive better ratings than newsworthy verbs which do not benefit from word-family effects. This is plausible, since lexemes with established analogous formations relate to an already existing and therefore obviously relevant concept.

# 6.3.2 A cognitive model of new verbal compounds and pseudo-compounds revisited

The model that was proposed in chapter 4.2, is an attempt to visualise the processes taking place when a hearer is confronted with a new verbal compound. It was assumed that initially he or she tries to have recourse to a base concept, which is usually nominal. If this is not possible, the word is split into its component constituents. If one of these constituents displays word-family effects, the underlying concept serves as a base for deriving a possible meaning. This implies that some kind of anchor is needed to be able to assign meaning to the verb. The easier it is to retrieve a possible meaning, the more likely is the compound to be accepted. Additionally, the criterion of newsworthiness was assumed to be essential for all words.

The results of the survey indeed support this model, which will be illustrated with the help of some examples. To make the interpretation of the following examples quite clear, it is important to note that it is not claimed that the lexemes to be presented below are accepted as proper English by the participants. As has been noted, a general reluctance towards the test lexemes was observed. What the following discussion is meant to illustrate is the fact that in those cases where people do come up with a meaning for the offered test verb, the suggested paraphrase contains highly interesting elements which can be brought in line with the model.

In the easiest case, a novel verbal compound triggers a nominal base lexeme and the related cognitive concept. If the concept is regarded as relevant enough to justify the existence of a verb as well, the lexeme will be accepted. Thus, a verb like to \*palm-read is meant to be processed in the following way: Hearing the verb evokes the cognitive concept underlying existing compounds like palm-reader or palm-reading. Note that the conceptual content is the same for both, with the focus being on the person in the first and on the activity in the second lexeme. From this base concept, which can be described as denoting 'the action of telling a person's fortune by looking at the lines on the palm' (OED, s.v. 'palm-reading, n'), the activity is verbalized, resulting in a meaning that could be rendered as 'to tell a person's fortune by looking at the lines on his palm'. If the resulting meaning is regarded as newsworthy enough, the verb might be successful. In this case, the lack of transparency and the figurative language are assumed to be responsible for a sufficiently high degree of relevance, which is why the verb to \*palm-read was accepted by most participants (mean acceptability: 1.75).



Figure 6.4: Model of mental access (to \*palm-read)

A second case where a direct base concept exists is the verb to *\*garden-party*. Thus, the verb triggers the underlying noun *garden-party* and cognitively evokes the concept GARDEN-PARTY. But simply deriving a meaning for the verb like the one offered in the question-naire 'to give or attend a party in the garden, often with barbecue' does not seem justified, as it is obviously not newsworthy enough (mean acceptability: -0.25). This might have led one participant to suggest the paraphrase 'to waste time when you should be having a constructive meeting'. Here, some associations related to the nominal concept GARDEN-PARTY, pictured as attributes in the cloud in Fig. 6.5, have been selected and reframed:

## QUESTIONNAIRE STUDY



Figure 6.5: Model of mental access (to \*garden-party)

Here, metaphorical components play a crucial role since the participant is not completely satisfied with the literal meaning derived from the base noun. The same phenomenon can be found in the examples of *to \*figure-skate* or *to \*window-clean* mentioned above. In these cases, the derived verbal meaning is not regarded as being relevant enough, although there is a nonverbal base lexeme. As a consequence, additional meaning elements are incorporated in order to fulfil the criterion of newsworthiness.

Having discussed two examples in which mental recourse to a base concept is possible we will now see what happens when this option is not present and the hearer needs to find another way to assign meaning to the novel lexeme. In the following example of to \*floorsit, a base lexeme from which the verb is derived does not exist, which excludes the possibility of recurring to an existing concept for this compound. However, the constituent -sit evokes analogous lexemes like *babysit/-er/-ing*, *housesit/-ing*, etc. It is therefore assumed that in cases where no derivation base can be accessed, the novel compound verb is split into its component lexemes. If one of them can be linked to analogous lexemes via word-family effects, the underling concepts will serve as a basis for deriving a potential meaning. In this case of to \*floorsit, the hearer does not attempt to derive the meaning from the constituting elements floor and sit, but the second constituent evokes concepts like BABYSIT, which serve as a basis for deriving the verbal meaning. Thus, the meaning component 'to look after x'-together with further elements of these concepts, e.g. 'in the absence of the parents'-is transferred to the new word to \*floorsit. This explains the associations in the participants' paraphrases 'to monitor an area' or 'to look after someone else's floor while they're away', which seemed newsworthy enough for the participants to come up with these meanings, irrespective of whether the verb would have chances of becoming established in general or not.

It is important to note that the search for a derivation base or lexemes linked via word-family effects is not claimed to happen consciously. It is rather to be understood as a mental process that is triggered by the confrontation with the novel lexeme and automatically reminds the hearer/reader of related lexemes and evokes certain associations.


Figure 6.6: Model of mental access (to \*floorsit)

In the next example, the hearer faces the same preconditions as in the preceding case, i.e. an underlying derivation base for the verb cannot be accessed. However, the constituent *-hop* evokes analogous concepts linked to *barhop*, *tablehop*, *islandhop*, etc. It is important to note that it is not sufficient to simply isolate the meaning of *-hop* and apply it to the novel lexeme *to \*househop*: The offered meaning paraphrase 'to move from one house to another' is not considered newsworthy enough to justify the existence of the verb (mean acceptability: 0.34). What is striking is the fact that the paraphrases for *to \*househop* 

offered by the participants do not include associations related to a frequent change of residence, but elements like vacation, parties and meeting friends instead: "to hop from a party in one house to one in another", "to travel from house to house on vacation", "to move from one house from another, playing and snacking. Either with a group of friends, or to visit friends". This finding is plausible if it is taken into account that existing *-hop*-verbs mostly fall into the categories of leisure time and fun activities. Thus, it can be noticed that further elements of analogous concepts are being integrated into the verbal meaning.

#### QUESTIONNAIRE STUDY



Figure 6.7: Model of mental access (to \*househop)

The following verbal compound evokes diverse concepts in which the constituent -clean more or less maintains its literal meaning. As it is not possible to recur to a nominal or adjectival basis (\*spongecleaner, \*spongecleaning, \*spongecleaned), the verb is supposedly split into its constituents, the second of which is related to other lexemes via word-family effects. As in existing lexemes like to vacuumclean or to steamclean the first constituent describes the Instrument of the cleaning process, the meaning of *clean* in the test verb to \*spongeclean might also be interpreted as 'to clean with x'. Although the mean acceptability was astonishingly high (0.57), the offered paraphrase 'to use a sponge for cleaning something' did not seem sufficient to all participants. Since all existing verbs ending in -clean are lexicalized in a special way, e.g. to steamclean, which is a technical term, to dry-clean, which is strongly lexicalized as 'to clean with the help of chemicals' and 'used for clothes and fabrics', or to vacuumclean, which denotes a cleaning process with the help of a special electrical device, for removing dust by suction (OED, s.v. 'vacuum cleaner, n'), it seems to be necessary to add meaning components like 'only' or 'superficially' in order to render the lexeme newsworthy.

## QUESTIONNAIRE STUDY



Figure 6.8: Model of mental access (to \*spongeclean)

In a next step, it will be interesting to see what happens if neither a derivation base nor analogous concepts are available for deriving the verbal meaning. These preconditions are met by a verb like to \*cardpay, which neither allows a mental recourse to a nominal or adjectival base, nor exhibits word-family effects that might relate it to other verbs sharing one of its constituents. The questionnaire study reveals that this lexeme indeed scored only poor ratings (mean acceptability: -0.80), on the grounds that 'to pay a bill using a credit or debit card' is probably not regarded relevant enough to justify the verb. In this context, a highly interesting solution has been suggested: The paraphrase 'to pay with a system called cardpay' was proposed as a possible meaning. What becomes obvious is the need of a derivation base, which provides a meaning for the verb. In order to be able to assign meaning to the otherwise unsuccessful combination to \*cardpay, the participant created a fictitious derivation base (a system called cardpay<sup>81</sup>).

<sup>81</sup> There actually is a payment processing service offered under the name 'cardpay'.



Figure 6.9: Model of mental access (to \*cardpay)

The last example I would like to discuss is the lexeme *to \*table-eat*. The mean acceptability is -1.54, which indicates that hardly any participants rated this verb as acceptable. The model illustrates that neither a nonverbal derivation base nor analogous concepts are available. Consequently, the lexeme will be refused in the majority of cases, if there is no reasonable justification for a verbal compound alongside a syntactic phrase.



Figure 6.10: Model of mental access (to \*table-eat)

As has been mentioned above, these examples are not meant to create the impression that all lexemes are accepted as English verbs and would be employed in actual language usage, as comments like 'word order problematic', 'unusual' or 'haven't really heard of this one' suggest. Thus, even when participants arrive at a possible meaning paraphrase for the test verb, a general hesitation about whether it could exist after all remains. As the comments and the acceptability scores indicate, verbal compounds are not entirely accepted.

# 6.3.3 Summary and conclusion

The questionnaire study was intended to scrutinise the findings from the preceding corpus analysis and try to confirm the resulting hypotheses. The study revealed that first, derivations, i.e. verbal pseudo-compounds, yield higher acceptability rates than genuine verbal compounds. This implies that such combinations are cognitively not processed as compounds, but function only by mentally recurring to a base concept which provides a possible verbal meaning. This idea has been confirmed by the model discussed in 6.3.2, which is supported by the paraphrases provided by the participants of the questionnaire study and indicates that existing base concepts considerably influence the acceptability of novel verbal compounds. Secondly, it has been shown that word-family effects significantly enhance the ratings with regard to the acceptability of the lexemes. This finding is also supported by the model of 6.3.2, which proves that lexemes which share a constituent with the test verb are an important anchor for assigning meaning. Thirdly, the criterion of newsworthiness has been examined in detail. Particularly interesting are figurative language and deviations from the norm, which is why the investigation concentrated on these two aspects. As regards deviations from the norm, it was shown that they increase the chances for a novel lexeme to be accepted. Metaphorical elements are more difficult to handle, since they severely lower the ratings for novel and therefore completely intransparent lexemes. If a choice between alternative meaning options is offered, however, or participants are free to create a potential meaning, metaphorical elements play a crucial role. In general, it was found that relevance is fundamental and the meaning must not be compositional, but requires some further elements like a restrictive only or superficially, as in the example to \*spongeclean.

The cognitive model of verbal compounds and pseudocompounds in particular addresses some points that have already been discussed in chapter 3. In 3.3.1 it has been argued that compounds are in general processed as a whole and not split into their constituent concepts. As long as a derivational basis is accessible, as in the case of *to \*palm-read* (which is derived from *palm-reader/palmreading*), this turned out to be true. As soon as it is not possible to recur to a nonverbal base lexeme, however, other mechanisms apply. It has been argued that in an example like *to \*floorsit*, the verb is split into its constituting elements and matched against familiar concepts. This has been implied in the discussion on the Figure/Ground distinction, where it was stated that striking phenomena are compared against a background of what is familiar. A spelling error (the Figure) stands out against the Ground of the familiar orthography. Similarly, the lexemes to \*floorsit or to \*coldvisit stand out against the existing lexemes to babysit or to cold call. The entrenchment of such existing concepts in the mind of the language user always depends, of course, on the frequency of encounters with the respective lexeme he has experienced. It has also been argued that with increasing familiarity of the speaker/hearer with the constituents of a novel compound, the ease with which a (pseudo-)concept can be formed increases. It has been shown that word-family effects, i.e. the presence of a constituent that links the novel concept to existing ones, increase the readiness of participants to provide paraphrases of possible meanings for the test lexeme.

The discussion of this model has provided some crucial insights, although it ultimately does not yet answer the overarching research question. It is, therefore, to be regarded as a tool, though an important one, on the way to determining reasons for the lack of productivity of verbal compounds in English. The following chapter recapitulates the findings of the corpus and questionnaire studies and goes one step further by including supplementary ideas in order to arrive at a coherent argumentative result and finally provide a satisfying answer to the research question.

# 7 Synopsis of discussion: Key factors for the formation of verbal compounds

To summarize the line of reasoning that has been pursued, the starting point for the analysis was a pool of all possible combinations of two free lexical morphemes that a language user might call a verbal compound. It soon turned out that, due to taking into account a distinction between genuine verbal compounds and verbal pseudo-compounds, several combinations are by definition excluded from this pool right from the beginning. These are back-formations like *to babysit*, zero-derivations like *to cold shoulder*, and analogous formations like *to chain-drink*, since all of them can be related to a nonverbal base lexeme and treated as derivations.

A discussion of genuinely compounded verbs also includes the necessity of taking into account their morphological structure, i.e. the question of whether the lexeme can be interpreted as exhibiting a determinant/determinatum structure. As has been argued, in order to exclude a possible underlying derivation base, the verb needs to be endocentric, thus prototypically displaying a verbal second constituent. A compound functioning as a verb with a nonverbal second constituent can always be traced back to a syntactic phrase, since adjective + noun or noun + noun combinations are practically unconstrained. Morphologically speaking, these considerations leave as the only possible combinations for genuinely compounded verbs, N+V, A+V and V+V combinations. The corpus analysis was built on these observations and was found to further limit the scope of potential combinations.

# 7.1 Lexicological factors—Evidence from the corpus analysis

The analysis of the corpus was intended to provide a detailed picture of the underlying patterns of existing VPCs in English. These characteristics are different lexicological factors that can be regarded as preconditions for potential verbal compounds.

#### 7.1.1 Morphological shape and structure

As regards morphological shape and structure, there are several criteria that need to be fulfilled in order to qualify a lexeme as a potential verbal compound. To briefly summarize the findings, among the criteria that have been found are the general length of the lexeme, both morpheme-wise and with regard to the number of syllables. Thus, combinations of two morphemes only, each of them consisting of no more than two syllables, are strongly preferred and have better chances of entering the lexicon. Conciseness and brevity may be crucial here, as well as a general preference for short lexemes in the English language, where word length is limited. A lexeme like to \*temperature-regulate would therefore hardly be possible. It was also noted by Adams (1973, 109) that short lexemes are preferred over long ones when zero-derivation is involved, which explains why VPCs in general are stylistically marked. Thus, the motivation behind using a verbal compound or pseudo-compound lies in the shortness of expression. Consequently, the longer the lexeme is, the less likely it will be employed and consequently accepted and established.

Moreover, it has been found that V+V combinations constitute a minority, which is also why N+V and A+V compounds were primarily focused on in the course of the study. This hesitation of combining two verbs can also be said to reflect what is empirically observable: The preponderance of N+N and A+N compounds in the English language could partly be motivated by the ease with which their concepts, but also their referents, may be combined or happen to co-occur. A tree, for instance, can bear apples; stamps or photos can be put into an album. Provided that a relevant matter of fact is described, the linguistic result is a compound: here apple tree or stamp-album/photo album respectively. Extending this thought to adjectives, it can easily be observed that things happen to have characteristics that might be highlighted or compared to other things in language. Thus, wine can display the characteristic of being red or white (A+N: red wine, white wine), or some object can be blue as the sky or green as grass and thus referred to as sky-blue or grass-green (N+A compounds). In the same way, it is possible for something to have two characteristics at the same time, or rather, a characteristic that has to be located somewhere between two ends, resulting in an A+A compound, e.g. bittersweet, blue-green, etc. Applying this idea to V+V combinations leads to problems, since two activities cannot be combined without difficulties. In general, it is not easy to simultaneously engage in two activities, and when this is possible, one activity is usually focused on. In cases where two activities can be performed at the same time, e.g. ironing and watching TV, this does not necessarily nominate it as a potential verbal compound, as further criteria like newsworthiness, etc. must be met.

## 7.1.2 Semantic relations and lexicalization

The distinction between participant and circumstantial roles is essential, as the results of the corpus analysis have demonstrated that participants are excluded as first constituents of VPCs. Even apparent participants were found to modify the head verb, since the complex lexeme as a whole remains transitive. What has repeatedly been noted by linguists, e.g. by Dirven and Verspoor (1998, 58), namely, that the first constituent of a verbal compound usually "suggests circumstances in which the event takes place", has been verified as part of the comprehensive analysis in chapter 5. With regard to syntax, this means that no essential complements can be part of the compound, i.e. no subjects or objects can serve as first constituents.

This explains why the lexemes found in the corpus are in striking contrast to hypothetical verbs like *to \*cardrive* or *to \*bookread*, in which *car* and *book* are meant to denote the proper grammatical objects of the verbs. This explanation not only supports the overarching

hypothesis of circumstantials and participants (since the first constituents do not function as participants, but modify the external object, and therefore have the same function as circumstantials in general), but also brings us back to the very definition of compounds. The question is probably not so much about circumstantial versus participant roles, but primarily about the general distinction between the modifier and the head. A prototypical compound, the definition goes, consists morphologically of a modifier and a head. It can be observed that this is fulfilled by all potential (nonverbal) endocentric combinations: in apple tree (N+N) apple modifies tree, in blackboard (A+N) black characterizes the board, in bottle-green (N+A) something is green as a bottle, and in bittersweet (A+A) the constituents can be said to be coordinative, but *bitter* can also be regarded as modifying sweet. Consequently, this characteristic can also be expected to be true for verbal compounds. In cases that can be assigned a circumstantial relationship, the adverbial or shortened prepositional phrase automatically takes on the function of the modifier, and for the remaining cases, which I have just discussed, the apparent object does not function as such in the sentence. The first constituent modifies the real grammatical object, which has to follow the complex verb or, in some cases, is only implied when the verb is used absolutely.

A distinctive feature of compounds is that their meaning cannot sufficiently be rendered from the constituents, even if the semantic relation underlying a verb like *to spearfish*, for instance, is known. From a structural point of view, a compound is always lexicalized to a greater or lesser extent. As has been noted, this lexicalization is most conspicuous on the semantic side. It was observed that many corpus lexemes are highly lexicalized, a huge number of verbs carrying additional figurative meaning. This finding reflects what was stated in Neef (2005, 121–122) for converted verbs, which "are all based on lexicalised compounds [...]. Thus, transparent compounds seem to be excluded from conversion into verbs". If we examine the hypothetical compound verbs given in the title of this book, *to \*cardrive* and *to \*bookread*, it is clear that no lexicalization can be found in these words, which are simply constructed to mean 'to drive a car' and 'to read a book'. Such combinations thus carry no additional

meaning compared to a syntactic construction and would be mental ballast. By contrast, existing pseudo-compounds like *to cherrypick, to cradle-rob, to headhunt*, or *to shepherd*, the last referring to a group of people being guided somewhere, can hardly—or in fact impossibly be understood from their constituents. It is obvious that the verb *to cherrypick* cannot mean 'to pick cherries' in its literal sense, since so many different things can be picked that it would violate the economy of the lexicon to store them as separate entries. The lexicalized status of existing verbs points to the fact that there must be a reason that justifies their existence as a separate entry in the lexicon. This point will be taken up under the heading of 'newsworthiness'.

# 7.1.3 Temporal structure and the role of controllability/intention

Activities are generally considered as prototypical denotata of verbs. In line with this, a clear preponderance of activities has been discovered among the corpus verbs, followed by accomplishments. As was discussed, activities and accomplishments both display the feature [+DURATIVE], thus denoting ongoing processes with at least a certain amount of stability over time. Further defining characteristics of dynamic processes are deliberateness and voluntariness. In contrast, states are in general beyond control and cannot be influenced. Therefore, an intentional verb to watch is predicted to be a better candidate for a verbal compound than the unintentional verb to see. In the corpus, to birdwatch and to clockwatch exist, both denoting deliberate activities, whereas only the verb to sightsee has see as a verbal constituent, still denoting an intentional activity, however<sup>82</sup>. Genuine states allow no imperative and cannot deliberately be started or ended. This matter of fact gives rise to two further interesting speculations: A first assumption that can be made on the grounds that controllability and deliberateness play a crucial role is that consequently active meanings

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<sup>82</sup> Note that the OED lists the active definition 'to direct the sight intentionally to; to look at' for *to see* (OED, s.v. 'see, *v*'), which is at work here.

are preferred over passive ones. To illustrate this with an example, there is a traditional competition called *cheese rolling*, carried out annually in Gloucestershire, where competitors chase a wheel of cheese which rolls down a hill. Whereas the action noun *cheese rolling* denotes the whole complex situation, a derived verb *to \*cheese roll* is hardly imaginable, since the action of rolling is not actively carried out by the participants, but happens on its own once initiated. The actual activity of the competitors lies in chasing the cheese, which would not be coded in the VPC.

Two similar examples are to \*food-poison and to \*earshoot, which have been tested in the context of the questionnaire study and yielded results that are well in line with the hypothesis concerning active and passive meanings. The former example is a derivation from the nominal compound food poisoning, 'illness caused by the presence in food of harmful bacteria or of toxic substances' (OED, s.v. 'food, n'), and was expected to be assigned a meaning related to the base noun. Although food poisoning generally takes place without being intended, the majority of participants preferred instead the active meaning 'to deliberately poison food in order to harm someone'. The second example, to \*earshoot, is a derivation from the noun earshot. Deriving a verbal meaning in this case would result in the paraphrase 'to accidentally pick up a piece of news by happening to stand close enough to the speaker', which is both passive and non-intentional. A strikingly high abstention rate (62%), as well as negative acceptability results (-1.70) illustrate that such a lexeme is not likely to exist. Against this background, it has to be noted that a similar thought was already mentioned in Sapir (1911, 264), however not relating to English, but with respect to incorporating languages. He indicated that "accidental' or indifferent activities [...] are rendered by verbs with independent, syntactically determined nouns".

The second speculation that stems from the observation that states are beyond controllability in that they, for instance, cannot deliberately be started or ended concerns the possibility of assigning a precise date of the action. It seems to be decisive whether a concrete time span can be determined that defines when the action was or is being carried out. I would speculate that the compound nouns *thrillseeker* and *wage-earner* are not suitable derivation bases for the verbs *to*  \*thrill-seek or to \*wage-earn. One reason among others that will be addressed in the following sections, I would argue, lies in the fact that one cannot be said to engage in these "actions" at a specific point in time. Whereas for a verb like to ite-skate or to babysit it is possible to answer the question What did you do yesterday at 3 pm?, this does not work for to \*thrill-seek or to \*wage-earn. Moreover, the denoted activities are very vague and not uniform as is, for example, to ice-skate. Concrete activities seem to be strongly preferred, which also becomes obvious when inspecting the results from the questionnaire study for the verb to \*homespin (derived from the adjective homespun). In addition to the derived metaphorical meaning 'to produce something which is simple or unprofessional', which was preferred by 44% of the participants, a strikingly high number of participants chose the rather odd, though at the same time more concrete, meaning 'to produce yarn with the help of a spinning wheel for one's personal need' (almost 27%). This might also be explained by the fact that the latter meaning can more easily be temporally located. Thus, it might be possible that general activities which are hard to specify and concretise are difficult to verbalize.

The analysis of a large number of attested verbal pseudocompounds provided important lexicological factors that are assumed to be the formal preconditions a genuine verbal compound would have to fulfil. Thus, the corpus analysis limited the scope of potential combinations, since the underlying patterns of existing formations demonstrate which criteria need to be fulfilled. Apart from being derived from an underlying nonverbal compound, the corpus lexemes display the features listed in the table below, from which negative effects for the formation of genuine verbal compounds can be derived:

Positive effects	Negative effects
low number of syllables	high number of syllables
morphologically simple constituents	morphologically complex constituents
N+V or A+V combinations	V+V combinations
circumstantial roles	participant roles
activities, accomplishments	states, achievements
intentionality/controllability	lack of intentionality/controllability
lexicalization	Compositionality/redundancy of meaning

Table 7.1: Overview of lexicological factors that influence the formation of verbal compounds

At this stage it can therefore be concluded that a verbal compound equipped with all the prerequisites apart from being derived is preferably short, prototypically a noun + verb combination, the first constituent providing information about the activity's circumstances, is carried out intentionally and semantically enriched in some way.

Several additional characteristics were found to be striking in the course of the corpus analysis. These include word-family effects and the notion of newsworthiness, which is also related to lexicalization. Since the strength of the influence of these factors cannot be derived solely from the corpus analysis, a questionnaire study was undertaken to provide further insights.

# 7.2 Cognitive factors—Evidence from the questionnaire study

In the questionnaire study, fictitious GVCs with the same underlying structure as the corpus verbs were formed, the difference being that they cannot, of course, be related to a nonverbal derivation base and do not actually exist. From the participants' answers crucial insights can be derived as to which parameters positively influence the likelihood of a verbal compound to being accepted. Moreover, the results lead to conclusions, which will be discussed below.

# 7.2.1 Word-family effects

Word-family effects, as was shown, are an important factor that greatly influences both the acceptability and comprehension of a novel verbal compound. The cognitive model of new verbal compounds and pseudo-compounds illustrates that fictitious verbal compounds which are linked to existing VPCs via one constituent are easier to comprehend and thus also more readily accepted, since they evoke related concepts which are included in the interpretation. When a language user is presented with a novel verbal compound, he first tries to recur to a nominal base concept, or at least find wordfamily effects, which evoke related concepts and enable a plausible interpretation of the novel combination. Therefore, the likelihood with which participants are able to assign a meaning increases when the verb exhibits word-family effects. A verb like *to \*fingercomb* or *to \*househop* might, due to the dense network of word-families, have chances of entering the lexicon.

On closer examination, however, several additional aspects become evident. *To \*househop* doubtlessly evokes concepts related to the novel verb via the constituent *-hop*. The fact that concepts of other verbs ending in *-hop* are evoked and present at the very moment *to \*househop* receives its interpretation becomes evident in the comments provided by the participants, which contain elements that are present in the concepts of *to barbop*, *to tablehop*, etc., but not retrievable from the constituents of the novel combination itself. However, this also means that *to \*househop* is clearly interpreted in analogy to the existing concepts *to barbop* or *to tablehop*, from which it derives its interpretation. In the context of the definition of verbal compounds, however, this implies that analogous formations are not genuinely compounded. Consequently, this does, of course, not ultimately solve the core issue of this book, since it does not provide an answer for GVCs.

Strictly speaking, therefore, a lexeme exhibiting word-family effects is never a genuine verbal compound, but an analogous formation that can only be assigned meaning through the related concepts of existing formations. On the one hand, this further reduces the number of possibilities according to which a GVC can be formed. In retrospect, it is sometimes difficult to determine whether two lexemes have been formed by analogy or just happen to exist with one constituent in common. However, as soon as related concepts are evoked, which are then present in the speaker's or hearer's mind, word-family effects are at work and the lexeme can no longer be said to be independent. On the other hand, the question arises of what these findings imply for GVCs, i.e. verbal compounds without wordfamily effects. Is there a likelihood of their existing when they fulfil all the necessary criteria? In order to answer this question, we need to know what exactly these criteria are. Particular importance has been attached to the criterion of newsworthiness or relevance. Given the results of the questionnaire study, this notion will be pursued in depth in the following section.

#### 7.2.2 Newsworthiness

In order to enable a systematic method of analysis, the questionnaire study was restricted to two categories of newsworthiness: metaphors and deviations from the norm. It was shown that only lexemes which contain relevant information yield positive results, whereas literal formations without some additional semantic value are regarded as odd and thus not rated as acceptable. Although only two aspects could be tested due to the limited scope of the questionnaire study, this does not mean that newsworthiness is necessarily confined to them alone. It should therefore be determined what exactly newsworthiness is, and what it is not.

With regard to synthetic compounds, the literature often mentions that habituality or professionalism is a crucial precondition for compound formation, without which it would not denote a sufficiently relevant concept. Thus, a person who drives a taxi only one time in his life cannot be called a *taxi driver*. However, it is obvious that this is not a sufficient criterion for verbal compounds. A lexeme *to \*taxidrive* is not conventionalized, since it needs some additional relevance to be justified as a separate lexeme next to a syntactic phrase. Thus, not even a taxi driver can say that he *\*taxidrives*. Viewed from the reverse angle, if I *gift-wrap* a present for someone's birthday, I am not automatically a professional or habitual *\*gift-wrapper*.

One reason these compounds are insufficient is that for synthetic compounds ending in -er, in order to be relevant enough to form a compound, the relationship between the concept denoted by the activity and the concept denoted by -er (the person performing it) requires a certain stability, which is best achieved if a habitual or professional activity is denoted. In contrast, in a VPC like to gift-wrap, where the person doing the wrapping is not morphologically coded, only the activity as such needs to display stability. Thus, it does not need to denote an activity that certain people carry out habitually or professionally, it must only be relevant as such. This means that it does not suffice to argue that a person who drives a taxi on a regular and habitual or professional basis can be said to \*taxidrive, as this argumentation is founded on a relation between the activity and the person engaging in it. In order to be relevant enough, the lexeme needs some additional relevance. It might be argued that the verbs to bellydance or to ghostwrite do imply professionalism and habituality, but it is obvious that they display additional newsworthiness, i.e. a deviation from a normal dance, where the belly usually is secondary, in the first example, and figurativity in the second one. No habituality or professionalism is required in order to be able to *cherrypick*, *stargaze* or bungeejump, but is implied again when a person is called a *cherrypicker*, star-gazer or bungee jumper. Thus, it can be noted that habituality and professionalism are not decisive criteria for the formation of verbal compounds.

Newsworthiness, therefore, must be defined differently. In chapter 3.1, it was argued that the establishment of novel lexemes can be regarded from a structural, socio-pragmatic or cognitive perspective, the processes involved being called lexicalization, institutionalization, and hypostatization. The motivation behind novel compound verbs can be analysed accordingly. From a structural, particularly semantic, point of view, a verbal compound can be said to be newsworthy when it, as Mithun (1984, 848) puts it, is "name-worthy in its own right". The formation of a new lexeme often serves the purpose of filling a gap in the vocabulary. For reasons of economy, a new lexeme will therefore only be stored in the lexicon when the same content cannot be rendered by a parallel syntactic phrase. Figurative language like metaphorical or metonymical meaning has been discussed as one factor, as well as deviations from normal or prototypical processes. Non-prototypical ways of doing something often denote particularly remarkable and noteworthy activities. Thus, it is precisely these compounds that often have good chances of yielding high degrees of acceptability.

From a socio-pragmatic perspective, the verb needs some kind of social relevance in general, i.e. it must denote a socially recurrent activity. The practice of wrapping presents for birthdays or similar occasions, for instance, must be common in the culture that uses the verb *to gift-wrap*. Similarly, a culture in which ice-skating is not commonly practised would not use the verb *to ice-skate*. Moreover, only a culture with public transport knows what it means if someone *straphangs*. Social relevance, therefore, is one of the most basic preconditions, since the formation of a lexeme would be useless if the related concept is insignificant.

Finally, from a cognitive point of view, the notion of newsworthiness is related to the idea that a lexeme evokes a coherent concept in the language user's mind. Thus, when hearing or reading a lexeme, we instantly attempt to imagine a situation or context related to it. This was called 'hypostatization' and concerns the fact that the existence of a compound verb presupposes the existence of a category of activities referred to. A verbal compound, therefore, evokes the idea that there is a coherent activity denoted by it, i.e. a conceptual unit, which must be clearly distinct from the individual concepts denoted by the compound's constituents. Consequently, to be newsworthy, the formal unit achieved by the compound must be based on a conceptual unit. The idea evoked by a verb like *to skywrite*, for instance, must denote a unitary cognitive concept as a whole and be distinct from the sum of the concepts SKY and WRITE.

These three aspects point to important features which will be discussed by means of some examples. The existing verb to skywrite is newsworthy from a structural point of view, since it is highly lexicalized and denotes the 'tracing of legible signs in the sky, especially for advertising purposes, mostly by means of smoke trails made by an aircraft' (OED, s.v. 'sky-writing, n'). Moreover, it clearly deviates from the norm, since writing usually requires ink, which is applied on a concrete surface like paper. With regard to the social aspect, the verb denotes an activity that became popular since it can be used on various occasions, e.g. advertising, unusual proposals of marriage, and so on, thus clearly displaying social relevance. Moreover, it is dependent on technical preconditions like the availability of aircraft and knowledge of the method, which is why in cultures which do not fulfil these preconditions, the corresponding verb would not denote a newsworthy activity. From a cognitive point of view, the verb evokes a complex cognitive unit which includes various aspects that are not present in the concepts SKY and WRITE. The activity of skywriting is a coherent situation that displays a prototypical course of action, a conceptual gestalt which is generalizable for a whole class of slightly different types of procedures and circumstances, which can all be referred to by using the same lexeme. Thus, the lexeme can be employed irrespective of whether, for example, letters or other signs or images are traced in the sky, or whether the activity is motivated by advertising purposes or not. This VPC, therefore, fulfils all preconditions of newsworthiness and does, obviously, exist.

I would like to discuss another example, which can also be related to a nonverbal base lexeme, namely, the verb *to \*meat-eat*, which could be derived from *meat-eater* or *meat-eating*. From a structural point of view, the verb at first sight does not display particularly newsworthy information, since additional semantic features that distinguish it from the syntactic phrase 'to eat meat' are not evident. However, if the verb is regarded as denoting a contrast to herbivores in the animal kingdom or used in a social environment of vegetarians to distinguish the group of meat-eating people, it attains relevance. Based on this hypothetical construct, the lexeme would be newsworthy enough to be applicable to a sufficiently large group of situations. Also with regard to the cognitive perspective, it could be argued that a coherent cognitive concept denoted by to \*meat-eat exists, just as a concept for to be a vegetarian exists. Still the lexeme to \*meat-eat does not exist, and I would argue that the reason does not (primarily) lie in the fact that the concept is not newsworthy. Here again, the notion of temporal structure discussed above becomes important. A comparison of the verb to \*meat-eat with the preceding example to skywrite demonstrates that the latter clearly displays the temporal structure of an activity, the precise date and time of which can be determined. In contrast, a person cannot in the same way engage in the activity of *meat-eating* as defined above. The fundamental principle that prohibits a verbalization is called 'profiling'.

## 7.2.3 Profiling and different ways of conceptualization

The difference between verbs like *to \*meat-eat* or *to \*thrill-seek* on the one hand, and lexemes like *to skywrite* or *to gift-wrap* on the other, is based on the fundamental principle of profiling. The basic question, I would argue, concerns the nature of the profiled concept: What does the lexeme inherently focus on?

If we return to the example *to \*meat-eat*, we recall that the principle of hypostatization is responsible for the fact that hearing or reading a lexeme evokes a category of referents; a verb therefore evokes a related process or situation. The verb *to eat*, for instance, evokes the idea of how food is raised to the mouth, chewed, swallowed, etc. Thus, the activity as such, i.e. the course of action of the temporal process, which includes change from one moment to the next, is 'profiled'. This is due to the fact that verbs designate processes. This is not the case with the verb *to \*meat-eat*. It cannot imply that someone raises a piece of meat to his mouth, chews and swallows it. An aspect that comes into play here is that of referentiality. Nouns

that are in the position of the modifier in compounds never have a concrete, referential meaning, but can only be used in a generic reading (see also Cho 2002, 61). Accordingly, meat in to \*meat-eat does not refer to a specific piece of meat, but is non-referential. The only plausible interpretation is the general meaning 'to not be a vegetarian', since a referential usage of the first constituent would result in a meaning redundancy, because the verb would be synonymous with a syntactic expression. A closer examination of the verb makes clear that, inherently, to \*meat-eat does not describe an activity. What is profiled is rather the fact that someone, in general, eats meat. This, in fact, is a characteristic describing a person or an animal, i.e. an atemporal relation. Not the process of someone eating meat is interesting and focused on, but the fact that someone can be said to be distinct from the group of vegetarians. The concept is therefore inherently nonverbal. The logical consequence is to express this matter of fact by means of either an adjective, which denotes the characteristic attributable to someone, or a noun, which describes the person as a whole displaying this characteristic: a meat-eating dinosaur or simply a *meat-eater*.

A similar example is to \*money-grab. Even though money-grabber and money-grabbing do exist, the verb to \*money-grab could not be derived from either term. The reason is obvious: Due to the nonreferentiality of the first constituent and for reasons of newsworthiness, the verb cannot be employed to mean 'to grab money (at a certain point in time)'. It inherently characterizes a person, not an activity. Thus, it is possible to say He is a money-grabber or to refer to someone as being money-grabbing, but not \*He money-grabs. Or consider the following example: A person engaging in dangerous activities can be called a thrill-seeker or be referred to as being thrill-seeking. For reasons of economy, the formation of a compound is only profitable if a recurrent matter of facts is described. If what is supposed to be expressed is that someone at a certain point in time engages in a specific activity because he loves the excitement, a syntactic phrase He is seeking the thrill is sufficient. Given a recurrent situation, e.g. this person happens to repeatedly pursue dangerous activities, this fact is remarkable and newsworthy, since it can repeatedly be associated with a certain person, and the formation of a compound is

reasonable. However, since not the activity of seeking the thrill is interesting and profiled, but the fact that a person can repeatedly be experienced as doing so and thus generally be attributed the characteristic of being a thrill-seeking person, the concept is inherently nonverbal. This is why the adjective *thrill-seeking* is possible, as well as the agent noun *thrill-seeker*, but not a verb *to \*thrill-seek*.

In the same way, it is impossible to derive verbs from the compounds *fish-eater* 'one who lives chiefly upon fish' (OED, s.v. 'fish, *n*<sup>1</sup>') or *pill-popping/pill-popper* 'person who takes pills freely or excessively' (OED, s.v. 'pill, *n*<sup>3</sup>'). The same also applies to verbs where no nominal derivation base exists. Imagine a group of people who practise swimming some lanes every morning in an indoor swimming pool. A person who prefers taking a dip in the near lake instead would be remarkable and thus newsworthy at least in this context. Since *lake* in the verb *to \*lake-swim* cannot refer to a specific lake, the compound if it existed—could only have a general reading. Since not the activity as such, but first and foremost the person performing it attracts attention, he could possibly be referred to as the \**lake-swimmer* in this context, or as someone who likes *lake-swimming*.

This example, however, raises another issue. It has been argued that on the one hand, genuine verbal compounds are not formed because the profiled concept is inherently nonverbal, but denotes a characteristic instead. For precisely this reason also the possibility of deriving a VPC can be constrained. Additionally, a further point has to be discussed, since this argument obviously does not cover all lexemes. Although to \*lake-swim is attributable to a person habitually engaging in this activity, this example is different from the preceding ones and rather resembles the above-mentioned to \*taxi-drive. Moreover, the verbs to waterski or to ice-skate, which seem structurally parallel to to \*lake-swim, do exist. All these verbs denote an activity and-depending on whether they are newsworthy enough, like to waterski or to ice-skate, which are remarkable because of the unusual location-exist or not. The central question that remains to be answered is: Why are verbs like these, which inherently denote an activity, are newsworthy and fulfil all formal preconditions, never directly compounded? The preference for expressing new concepts by means of a noun must be grounded on a preference for cognitively processing them as 'things'. Although to gift-wrap, to waterski, to bellydance, to ice-skate or to lipread clearly focus on an activity, they are verbs only by means of derivation from a prior existing compound noun. The reason, I argue, is that it is not sufficient for a compound verb to denote a newsworthy activity, eventually it must refer to a unitary, holistic cognitive gestalt. Nonverbal compounds, agent and action nouns are particularly prone to enter a combination for different reasons: If a new activity needs to be named, the most striking element is often the newly invented equipment. To waterski is a zero-derivation from the homonymous noun denoting a pair of skis that enables the wearer to skim the surface of water (OED, s.v. 'water-ski, n'). Similarly, ite-skate at first referred to the device necessary for the activity. The decisive principle in this context is the principle of saliency, according to which concrete, physical objects are intrinsically more salient than abstract ones. An activity as such cannot be visually perceived. The entities involved, e.g. the persons pursuing the activity or the necessary devices and instruments, can however. Due to this saliency their demanding a name seems to be particularly strong, which is why the formation of a noun is prioritized.

Furthermore, a compound must evoke a coherent cognitive unit; a verbal compound, therefore, needs to denote a holistic, complex situation with an institutionalized course of action. If a new activity is repeatedly pursued by different people, the context and the way it is carried out may vary but the prototypical core is stable and characterizes all instances as the same activity. The fact that a distinct concept for this activity emerges motivates the formation of a separate lexeme. The practice of *babysitting*, for instance, constitutes a separate cognitive phenomenon that is distinct from the process of simply sitting near and looking after a baby. It cannot be reduced to a simple, straightforward activity, but it is a complex situation comprising diverse components. The aspects included are that someone, for a limited period of time and usually in the absence of the parents, takes care of a baby or little child and is paid in return. Although to babysit essentially describes an activity, it at the same time evokes different elements of a more complex concept. Therefore, this activity can only be assigned a plausible interpretation on the background of the

whole complex situation. This has also been supported by the model discussed in 6.3.2. A novel activity is not construed as an action, it is the complex situation as a whole that is conceptualized. The difference here concerns the modes of mental scanning processes, labelled summary and sequential scanning. It has been argued that nouns are conceived by means of summary scanning, which coactivates all the conceptual components, making them simultaneously available as a coherent gestalt. The underlying reason novel activities are preferably construed by summary scanning is that nouns, as has been argued, have a higher concept-formation power than verbs and are more suitable for expressing complex concepts. A situation construed as a thing is concrete and consequently easier to grasp. Moreover, the complexity of such concepts favours the formation of a noun, because nominal concepts, as Kornexl (1998, 69) points out, are inherently more complex, i.e. structured in a richer and more complex way83. In contrast to verbs, which profile relations between entities, nouns profile the conceptual content as a whole (Langacker 1987b, 68 in Kornexl 1998, 68). It is only against the background of the whole complex situation and the knowledge of its elements that the complex verb can receive a plausible interpretation. Thus, if there were no constellation of components that define a situation as one of babysitting or a person as a babysitter, the activity to babysit could not possibly be pursued; one would simply look after a child.

I would like to include a related aspect that also comes into play here, namely, a fundamental characteristic that distinguishes verbs from other word classes and was already discussed under the heading of 'temporal stability' in chapter 3.1.3. This idea goes back to Givón (1979) and concerns the inherent nature of verbs as opposed to nouns, for instance, and describes verbs as temporally instable, since they denote changing or finite processes. Nouns, in contrast, prototypically denote temporally stable and non-changing entities. It therefore seems economically unreasonable to form a compound with a separate entry in the lexicon for temporally instable processes. This is also an explanation for why a lexeme like *to \*fisheat* cannot

<sup>83 &</sup>quot;[N]ominale Konzepte [sind] von Natur aus komplexer strukturiert und meist auch reicher konzeptualisiert [...] als verbale" (Kornexl 1998, 69).

describe that someone is eating fish at this very moment, since such an activity is temporally instable. To justify a combination of *fish* and *eat* in a compound, the relationship must be a more stable one and would, for the reasons described above, be expressed in a compound noun or adjective. Moreover, this distinctive nature of the different word classes also illustrates why verbs and nouns are not compatible. As Grimm (1877, 577) put it, a noun expresses temporally stable states of affairs and thus contrasts with the active nature of verbs, which should not be constrained by means of a composition.

Against the background of this information, I would like to illustrate the idea of profiling with some further examples. The verbs to gift-wrap, to lipread, to bellydance and also the hypothetical to \*palm-read denote activities. Although the initial lexeme at first glance seems to denote a relatively simple activity, it entails a large number of components and evokes a rich and complex concept: to wrap an article in special, colourful paper to make it look attractive, often decorated with a ribbon and accompanied by a greeting card, for the purpose of giving it as a present, usually for Christmas, birthdays or other festive occasions, etc. All these clearly defined associations are present in the verb to gift-wrap, but fade if the first constituent is exchanged for another noun. Also the concept of *lipreading* was first expressed by means of a noun. The verb was first attested almost 20 years after the action noun *lipreading* emerged (OED, s.v. 'lip, n'). Although such dates are not to be regarded as watertight arguments, they are in line with the idea that activities attracting attention at a particular time, because they denote something that is either new or inventive, are primarily conceptualized as coherent, thing-like concepts, since nouns are better suited for expressing complex concepts, and due to their concreteness enhance the language user's ability to fully grasp the cognitive concept. The existence of an additional verb to lipread illustrates that in cases where a need for a verbal expression exists, it can arise as a derivation, which, however, can only be assigned a plausible interpretation as a cognitive unit when the complex concept as a whole is present.

In a similar way, *to bellydance* denotes not only a dance in which the belly is particularly important, but includes meaning elements like 'oriental', 'erotic', 'performed by women' (OED, s.v. 'belly, *n*') and is

tied to associations like 'magnificent costumes', 'oriental music' and so on. The earliest attested lexeme is again the noun *bellydance*, which refers to the entire meaning conglomerate. Thus, a nominal conceptualization evokes all elements of the complex concept, against the background of which the verbal one can be interpreted.

The last example, *to \*palm-read*, which does not exist as a verb, is derived from the noun *palm-reader* or *palm-reading*. The questionnaire study has shown that the participants unambiguously understood this verb as 'to tell someone's fortune by looking at the lines of his palm' (abstention rate: 0), i.e. in a sense derived from the noun and which cannot be retrieved from the constituents only.

In this context, another aspect calls for attention. It has repeatedly been observed that nonexisting verbal pseudo-compounds are sometimes used in the infinitive form. Googling the respective verbs often redirects one to tutorials headlined 'How to ...', although the verb does not exist as such and is only used in the infinitive, e.g. 'How to handstand' or 'How to stone-wash jeans'. The reason for this possible usage of *to*-infinitives is the same as in the preceding examples and was addressed by Langacker (2005, 128):

What is the difference between a verb, e.g. *jump*, and the corresponding infinitive, *to jump*? They have precisely the same conceptual content and profile the same temporally extended relationship. The primary difference, I suggest, is that the infinitive imposes a holistic view on the process designated by the verb, i.e. it construes the event by means of summary scanning.

To summarize what has been said so far, based on the results of the questionnaire study, it was argued that potential verbal compounds basically need to fulfil several requirements: They need to be newsworthy on a structural, social and cognitive level, they must evoke a self-contained cognitive concept, and their temporal structure must be that of an active process. The finding that even under these preconditions verbal composition is not possible, i.e. a lexeme that fulfils all requirements can nevertheless not be compounded directly, can be explained in two ways relating to the question of what is being profiled and how language users conceptualize a situation. On the one hand, there are cases in which inherently a characteristic that can be attributed to an entity is profiled, thus resulting in a com-

pound adjective or an agent noun. On the other hand, there are cases in which an activity is focused on. However, in order to be justified as its own concept distinct from the constituents, the lexeme must denote a whole complex situation. Here, a nominal conceptualization facilitates the cognitive processing of complex bundles of information, and concrete, thing-like entities are moreover easier to grasp and process. In light of these findings, Langacker's (1998, 18) following statement can be regarded as a summary that brings the central idea to the point: "It is in fact the nature of an expression's profile—not its overall content—that determines its grammatical class".

# 7.3 Structural factors

The preceding sections have demonstrated that the nonexistence of a productive word-formation pattern for producing verbal compounds is grounded in the way speakers conceptualize complex situations. It should nevertheless be noted that alternative perspectives on linguistic phenomena add crucial insights to this cognitive-linguistic point of view and should, therefore, not be brushed aside. This is not to lower the significance of a cognitive-linguistic perspective, but, on the contrary, to stress the importance of an integrated, holistic approach that examines the phenomenon from different angles. In chapter 2, several approaches to verbal compounding were discussed within the frameworks of Structural, Functional and Generative Grammar. Although they did not allow an ultimate conclusion with regard to the aim pursued in the present book, they provided some interesting perceptions which are central to this topic. Hall (1956) compared English verbal compounds to noun incorporations that are typical of certain polysynthetic languages. Kirchner (1959) even spoke of a 'new synthesis', which he found was replacing the analytical structure of the English language. However, we have arrived at the conclusion that the verbs existing in English differ significantly from noun incorporations in Native American languages, for instance. Some essential structural characteristics of the English language that

impede the formation of genuine verbal compounds come into play here. Without claiming to be comprehensive, I will only briefly mention some important aspects.

A fundamental point to be discussed here concerns the structural make-up of the English language. Traditional language typologies classify languages on the basis of different criteria like morphology, word order, etc. However, a generally accepted classification for all existing languages is difficult to establish <sup>84</sup>. Sapir's (1921) morphological typology employs the terms 'analytic', 'synthetic', and 'polysynthetic' to describe whether a language combines several concepts into one word (Sapir 1921, 135). These notions denote extremes, since languages always display properties that are attributable to several groups. The English language, as well, cannot clearly be assigned one of the labels, but, since the complexity of lexemes is clearly limited, Sapir (1921, 136) included English in the class of analytic languages. In a footnote, he (1921, 136) remarks: "English, however, is only analytic in tendency. Relatively to French, it is still fairly synthetic, at least in certain aspects". It can be stated with certainty, however, that English is not a polysynthetic language. The complexity of lexemes is, compared to other incorporating languages, clearly restricted. Due to the largely analytical sentence structure, elements are not easily merged into highly complex entities, as is possible in Mohawk, for instance; information is preferably realized in separate lexemes. Thus, the practice of incorporating information is untypical of the English language.

A further aspect concerns the word order of English sentences, which is relatively fixed due to a lack of open case marking (although there is, for instance, the *s*-marker for the Genitive). In contrast to case languages like German, in which the word order of sentences is relatively flexible, the English language has a relatively rigid word order, which determines that the object must follow its verb, and so on. Essential complements, i.e. the subject and the direct object, have a clearly defined position within the sentence structure. The position of adverbs and also indirect objects is more flexible, although they usually appear in certain positions. Due to this strictly defined word

<sup>84</sup> Cf. Comrie (1981), Greenberg (1960) and Sapir (1921) for more detailed reading.

order, deviations from it give the sentence an unnatural appearance. Especially with regard to the direct object, variations are not accepted. The English word order rules prohibit that the direct object precede the verb, thus also sentences containing a verbal compound in which the first element denotes the object, like *Peter meat-eats* instead of *Peter eats meat*, are ungrammatical <sup>85</sup>. The fact that object plus verb combinations do not exist can therefore also be explained by the English word order rules, due to which verbs in which the verb follows the object conflict fundamentally with the rules of syntax in the English language.

The second major issue concerns the essential complements of a sentence. In the context of Fillmore's semantic roles, it was noted that participant roles, which denote distinct 'actors', speaking in Tesnière's metaphor, cannot be attached to a compound head <sup>86</sup>. Thus, the verb as the core element of a sentence does not readily combine with other clause constituents, but is realized autonomously. Accordingly, a verbal compound containing an essential clause constituent would affect the sentence structure, whereas a nominal or adjectival one would not. For example, the sentence \**Tyrannosaurus Rex meateats* lacks the direct object, whereas in *Tyrannosaurus Rex is a meateating dinosaur* or *Tyrannosaurus Rex is a meateater* all essential complements of the sentence are realized as distinct lexemes.

<sup>85</sup> This point is also mentioned in Pennanen (1966, 111): "It is particularly the objective type of compound substantive producing verbal derivatives that is against the genius of the language. English lacks the verbal type *to \*meat-eat*, which would match the noun and adjective types *meat-eater* and *meat-eating*. The generally accepted reason for this has been found in the English sentence laws, which demand that the object must follow, not precede, its verb, whereas the adverb may sometimes precede the verb, under other conditions follow it."

<sup>86</sup> For the German language, Wilmanns (in Šimečková 1994, 18) formulated this idea as follows: "Das verbum finitum ist von allen Satzgliedern befähigt, durch andre Wörter näher bestimmt zu werden, verhält sich aber sehr spröde gegen die Zusammensetzung. Der Grund liegt zunächst jedenfalls darin, dass neben dem Verbum als dem Kern und Träger des Satzes die Selbständigkeit der bestimmten Satzglieder am deutlichsten empfunden wurde".

# 8 Conclusion

The title of this book reads Why we don't cardrive or bookread, but slavedrive and lipread. The main objective of the study was to shed light on the question of why verbal compounds cannot productively be formed in the English language. The method pursued in this book is based on a corpus and dictionary analysis and a subsequent questionnaire study, by means of which the scope of potential combinations was gradually narrowed down. A number of language-internal and external factors have emerged that influence the formation of verbal compounds. Excluded by definition are back-formations, zeroderivations and analogous formations, which means that existing verbs like to babysit or to screentest are verbal pseudo-compounds. Lexicological factors define the general shape of verbal compounds and determine characteristics like morphological shape and structure, word length, semantic relations, etc. What is called *aktionsart* was also found to be a crucial factor, since states and processes that are unintentional and beyond controllability are excluded. Verbs like to \*cardrive and to \*bookread incorporate the direct object, i.e. semantically speaking a participant role, and for that reason alone are not potential formations. Moreover, a compound has to be semantically clearly distinct from a parallel syntactic phrase, neither of which is the case in these two lexemes. In contrast, to slavedrive and to lipread are newsworthy in that the first is metaphorical and the second a deviant from a normal reading process. They are semantically enriched to a sufficient degree to be justified as separate lexical entries.

Additionally, cognitive factors come into play. Compound verbs must refer to a cognitive gestalt, i.e. be newsworthy in order to evoke a distinct cognitive unit. Different ways of construal allow us to conceive of situations from different perspectives. Thus, the fundamental question in the process of word-formation concerns what the concept intrinsically focuses on. Marchand's finding that existing verbal pseudo-compounds either derive from a homonymous compound noun or from an agent noun, action noun or participial adjective is based on the overall construal of the situation. As has been demonstrated, the cognitive concept is either basically nonverbal, e.g. denoting a characteristic that can be attributed to an entity, or is inherently structured in a complex way, thus giving rise to an adjectival or substantival compound in the first place.

More general principles underlying the structure of the English language can be found to account for the reluctance of speakers towards these kinds of lexemes. Very generally speaking, they concern the typological language characteristics, which affect morphological and syntactic structures, internal complexity of lexemes and word order.

Thus, it can be concluded that reasons preventing the creation and establishment of genuine verbal compounds arise from the structural make-up of the English language, the nature of word-formational products, as well as from cognitive phenomena. Ultimately, the preconditions for successfully forming a verbal compound are not met from both sides: The English language does not fulfil the necessary preconditions that would give rise to verbal compounding, and at the same time, the nature of the concepts evoked by verbal compounds do not meet the requirements needed in order to be expressed by a verb.

# List of Abbreviations

А	Adjective
AE	American English
Ans	Answer
BE	British English
С	Constituent
Cat	Category
FG	Functional Grammar
FOP	First Order Projection (in Selkirk's framework)
FOPC	First Order Projection Condition (in Selkirk's
	framework)
FP	Functional Phrase
FS	First sister (in Roeper and Siegel's framework)
FSP	First Sister Principle (in Roeper and Siegel's frame-
	work)
GVC	Genuine Verbal Compound
LDOCE	Longman Dictionary of Contemporary English
Ν	Noun
Nat	Native language
NI	Noun Incorporation
NP	Noun Phrase
NW	Newsworthiness
OED	Oxford English Dictionary
Р	Preposition
V	Verb
VPC	Verbal Pseudo-Compound
WFE	Word-Family Effects
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Lexeme				
(deviant	Morpho-			
orthography	log.	Semantic		0
LDOCE)	Shape	Relation	Aktionsart	Source
aboutface	A+V	Locative	accomplishment	Cho <sup>87</sup>
abouttu <del>r</del> n	A+V	Locative	accomplishment	Cho
airbrush	N+V	Instrument	activity	both
aircondition	N+V	Object	accomplishment	Cho
aircool	N+V	Instrument	activity	Cho
airdrop	N+V	Locative	achievement	both
airdry	N+V	Instrument	accomplishment	Cho
airfreight	N+V	Locative	accomplishment	Cho
airkiss (air-kiss)	N+V	Locative	accomplishment	both
airlift	N+V	Locative	accomplishment	both
airmail	N+V	Locative	accomplishment	Cho
armtwist	N+V	Object	activity	Cho
armwrestle	N+V	Instrument	activity	Cho
assfuck	N+V	Locative	activity	Cho
asskick	N+V	Locative	accomplishment	Cho
babysit	N+V	Locative	activity	both
babystep	N+V	Manner	achievement	Cho
backbite	N+V	Locative	activity	Cho
backcheck	A+V	Locative	activity	Cho
backcomb	A+V	Locative	accomplishment	both
backcross	A+V	Manner	accomplishment	Cho
backdate	A+V	Time	achievement	both
backfill	A+V	Locative	accomplishment	Cho
backfire	A+V	Locative	activity	both
backhaul	A+V	Locative	accomplishment	Cho
backlash	A+V	Locative	achievement	Cho
backlight	A+V	Locative	activity	Cho
backpat	N+V	Locative	achievement	Cho
backpedal	A+V	Locative	accomplishment	both
backscatter	A+V	Locative	activity	Cho
backshoot	A+V	Locative	accomplishment	Cho

### Appendix A: Corpus analysis

87 Cho refers to Cho (2002).

Append	XIX
Locative	achieveme

N+V	Locative	achievement	Cho
A+V	Locative	activity	both
N+V	Locative	activity	Cho
N+V	Locative	achievement	Cho
A+V	Locative	activity	Cho
N+V	Locative	activity	Cho
A+V	Locative	accomplishment	both
N+V	Instrument	accomplishment	Cho
N+V	Object	activity	Cho
N+V	Locative	activity	both
N+V	Locative	activity	both
N+V	Manner	accomplishment	Cho
N+V	Locative	activity	Cho
N+V	Instrument	activity	Cho
N+V	Instrument	accomplishment	Cho
N+V	Locative	activity	Cho
N+V	Manner	activity	Cho
N+V	Locative	achievement	both
N+V	Locative	achievement	Cho
N+V	Object	activity	Cho
N+V	Locative	activity	Cho
N+V	Locative	activity	Cho
N+V	Object	activity	Cho
A+V	Causality	activity	Cho
N+V	Locative	activity	Cho
N+V	Instrument	accomplishment	Cho
A+V	Causality	accomplishment	both
A+V	Causality	activity	Cho
N+V	Instrument	accomplishment	Cho
V+V	Coordinative	accomplishment	both
A+V	Manner	activity	Cho
N+V	Instrument	accomplishment	Cho
N+V	Instrument	activity	Cho
N+V	Instrument	activity	both
N+V	Instrument	activity	Cho
N+V	Locative	activity	both
N+V	Object	accomplishment	Cho
	$\begin{array}{l} N+V \\ A+V \\ N+V \\ N+V \\ N+V \\ A+V \\ N+V \\$	N+VLocativeA+VLocativeN+VLocativeN+VLocativeA+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VInstrumentN+VInstrumentN+VInstrumentN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VLocativeN+VInstrumentA+VCausalityN+VInstrumentN+V	N+VLocativeachievementA+VLocativeactivityN+VLocativeactivityN+VLocativeachievementA+VLocativeactivityN+VLocativeactivityA+VLocativeaccomplishmentN+VLocativeaccomplishmentN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VInstrumentaccomplishmentN+VInstrumentactivityN+VInstrumentactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VLocativeactivityN+VInstrumentaccomplishmentA+VCausalityactivityN+V <td< td=""></td<>

bodysurf	N+V	Instrument	activity	Cho
bodyswerve boobytrap (booby	N+V	Instrument	accomplishment	Cho
trap)	N+V	Object	accomplishment	both
bookmark	N+V	Locative	achievement	both
bootlick bottlefeed (bottle-	N+V	Object	activity	Cho
feed)	N+V	Instrument	activity	both
bottomfish	N+V	Locative	activity	Cho
boxhaul	V+V	Coordinative	accomplishment	Cho
boxshuffle	N+V	Locative	activity	Cho
braindrain	N+V	Agent	activity	Cho
brainstorm	N+V	Locative	activity	both
brainwash	N+V	Locative	activity	both
breakdance	N+V	Time	activity	Cho
breakfast breastfeed	V+N	Object	activity	LDOCE
(breast-feed)	N+V	Instrument	activity	both
breaststroke	N+V	Locative	activity	Cho
breathtest	N+V	Object	activity	Cho
broadcast	A+V	Locative	activity	LDOCE
broadstroke	A+V	Manner	activity	Cho
browbeat	N+V	Instrument	activity	both
buckjump	N+V	Manner	achievement	Cho
bulkbuy	N+V	Manner	achievement	Cho
bumpstart	N+V	Manner	achievement	Cho
bungeejump	N+V	Instrument	accomplishment	Cho
Bushbash	N+V	Object	activity	Cho
bushwhack	N+V	Locative	activity	both
buttweld	N+V	Locative	accomplishment	Cho
cakewalk	N+V	Causality	activity	Cho
captivebear	A+V	Manner	state	Cho
captivebreed	A+V	Manner	accomplishment	Cho
captiveraise	A+V	Manner	accomplishment	Cho
carbo load	N+V	Object	activity	LDOCE
carbondate	N+V	Instrument	accomplishment	Cho
cardindex	N+V	Locative	accomplishment	Cho
caretake	N+V	Object	activity	Cho
carpetbomb	N+V	Manner	activity	both

(carpet-bomb)

carpool	N+V	Object	activity	both
carshop	N+V	Locative	activity	Cho
caseharden	N+V	Locative	accomplishment	Cho
casemanage	N+V	Object	activity	Cho
catcall	N+V	Manner	activity	both
caterwaul	N+V	Manner	activity	both
catnap	N+V	Manner	activity	both
chainreact chainsmoke	N+V	Manner	activity	Cho
(chain-smoke)	N+V	Manner	activity	both
chainstitch	N+V	Manner	activity	Cho
chalkmark	N+V	Instrument	achievement	Cho
channelsurf	N+V	Locative Instrument/	activity activity/	Cho
charbroil	N+V	Locative Instrument/	accomplishment activity/	both
charcoalbroil	N+V	Locative	accomplishment	Cho
checkmark	N+V	Instrument	achievement	Cho
cheerlead	N+V	Object	activity	Cho
cheesepare	N+V	Object	activity	Cho
cherrypick	N+V	Object	achievement	both
chinwag	N+V	Locative	activity	Cho
circledance	N+V	Locative	activity	Cho
clapperclaw clearcut (clear-	N+V	Instrument	activity	Cho
cut)	A+V	Causality	accomplishment	both
clearfell	A+V	Causality	accomplishment	Cho
clockwatch	N+V	Locative	activity	Cho
cluster-bomb	N+V	Manner	activity	LDOCE
cockfuck codename (code-	N+V	Instrument	activity	Cho
name)	N+V	Instrument	achievement	both
coldcall (cold call)	A+V	Manner	accomplishment	both
coldstart	A+V	Manner	achievement	Cho
coldsweat	A+V	Manner	state	Cho
coldweld	A+V	Manner	activity	Cho
colorbreed	N+V	Causality	accomplishment	Cho
colorcode	N+V	Instrument	accomplishment	Cho
colorcoordinate	N+V	Instrument/	activity	Cho

		Object		
colorcorrect	N+V	Object	accomplishment	Cho
colourwash comparisonshop	N+V	Instrument	accomplishment	Cho
(-shop)	N+V	Manner	activity	both
Congressbash copyedit (copy-	N+V	Object	activity	Cho
edit)	N+V	Object	activity	both
copyread	N+V	Object	activity	Cho
costjustify cradle-	N+V	Object	activity	Cho
rob/cradle-snatch	N+V	Object	activity	LDOCE
crashdive crashland (crash-	N+V	Causality	accomplishment	Cho
land)	N+V	Causality	achievement	both
crashtest	V+V	Coordinative	accomplishment	Cho
cropdust	N+V	Locative	activity	Cho
currycomb	V+N	Instrument	activity	Cho
customdesign	A+V	Manner	activity	Cho
custommake	A+V	Manner	activity	Cho
customtailor	A+V	Manner	activity	Cho
cutrate	V+N	Object	activity	Cho
dampdry	A+V	Causality	accomplishment	Cho
daterape	N+V	Time	activity	Cho
datestamp	N+V	Object	achievement	Cho
daydream	N+V	Time	state	both
deadend	A+V	Manner	achievement	Cho
deadlift	A+V	Object	accomplishment	Cho
deadlock	A+V	Causality	achievement	Cho
deadreckon	A+V	Manner	activity	Cho
deathqualify	N+V	Causality	accomplishment	Cho
deepfreeze	A+V	Manner	accomplishment	Cho
deepfry (deep fry)	A+V	Locative	accomplishment	both
diecast	N+V	Locative	accomplishment	Cho
direct deposit	A+V	Manner	accomplishment	LDOCE
directdial divebomb (dive-	A+V	Manner	activity	Cho
bomb)	V+V	Coordinative	activity	both
doggypaddle	N+V	Manner	activity	Cho
dogpaddle	N+V	Manner	activity	Cho

Append	IX
Manner	activity

dogsled	N+V	Manner	activity	Cho
dogtrot	N+V	Manner	activity	Cho
	N.T. + N.T.	<b>.</b> .	activity/	
doorstep	N+V	Locative	accomplishment	both
double click	A+V	Time	achievement	LDOCE
doubleback doublebook	V+A	Locative	accomplishment	Cho
(double-book) doublecheck	A+V	Time	achievement	both
(-check)	A+V	Time	accomplishment	both
doubleclutch	A+V	Time	accomplishment	Cho
doublecrop doublecross	A+V	Time	activity	Cho
(double-cross)	A+V	Time	activity	both
doublecut doubledate	A+V	Time	accomplishment	Cho
(double-date)	A+V	Manner	activity	both
doubledeal	A+V	Manner	activity	Cho
doubledip				
(double-dıp)	A+V	Time	activity	both
double-glaze	A+V	Time	accomplishment	LDOCE
doublelock doublepark	A+V	Time	accomplishment accomplishment/	Cho
(double-park)	A+V	Manner	state	both
doublestop	A+V	Manner	accomplishment	Cho
doubletalk	A+V	Manner	activity	Cho
doubletongue	A+V	Manner	activity	Cho
downgrade	A+V	Locative	accomplishment	LDOCE
download	A+V	Locative	accomplishment	LDOCE
downplay	A+V	Locative	activity	LDOCE
downscale	A+V	Locative	accomplishment	LDOCE
downshift	A+V	Locative	accomplishment	LDOCE
downsize	A+V	Locative	accomplishment	LDOCE
dripdry (drip-dry)	V+V	Coordinative	accomplishment	both
dripfeed	V+V	Coordinative	activity	Cho
dropforge	V+V	Coordinative	activity	Cho
dropkick	V+V	Coordinative	accomplishment	Cho
droptest dryclean (dry-	V+V	Coordinative	activity	Cho
clean)	A+V	Manner	accomplishment	both
drycomb	A+V	Manner	activity	Cho
			-	

drycure	A+V	Manner	activity	Cho
dryfarm	A+V	Manner	activity	Cho
dryfire	A+V	Manner	achievement	Cho
dryheave	A+V	Manner	activity	Cho
drynurse	A+V	Manner	activity	Cho
dryrot	A+V	Manner	accomplishment	Cho
drysalt	V+V	Coordinative	activity	Cho
dry-wall	A+V	Manner	activity	LDOCE
duckwalk	N+V	Manner	activity	Cho
dwarftoss	N+V	Object	achievement	Cho
earmark	N+V	Locative	achievement	both
earwig	N+V	Locative	activity	Cho
egosurf	N+V	Causality	activity	LDOCE
endplay	N+V	Time	activity	Cho
endrun	N+V	Locative	activity	Cho
faceharden	N+V	Locative	accomplishment	Cho
facelift	N+V	Locative	accomplishment	Cho
fairtrade	A+V	Manner	activity	Cho
fastbreak	A+V	Manner	accomplishment	Cho
fastforward (fast-	4 . 77		1. 1	
forward)	A+V	Manner	accomplishment	both
fasttalk	A+V	Manner	accomplishment	Cho
fastwind	A+V	Manner	activity	Cho
featherbed	N+V	Locative	activity	Cho
featherstitch	N+V	Causality	activity	Cho
fellowtravel	N+V	Manner	activity	Cho
fielddress	N+V	Locative	accomplishment	Cho
fieldstrip fieldtest (field-	N+V	Locative	accomplishment	Cho
test)	N+V	Locative	activity	both
filmset	N+V	Locative	accomplishment	Cho
finedraw	A+V	Manner	accomplishment	Cho
finetoothcomb finetune (fine-	N+V	Instrument	activity	Cho
tune)	A+V	Manner	accomplishment	both
fingerdry	N+V	Instrument	accomplishment	Cho
fingerexercise	N+V	Instrument	activity	Cho
fingerpaint	N+V	Instrument	activity	Cho
fingerpick	N+V	Instrument	achievement	Cho

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fingerpoint

fingerprint

fingerspell

firebomb

	APPENDIX			
	-			
N+V	Instrument	activity		
N+V	Instrument	accomplishment		
N+V	Instrument	accomplishment		
N+V	Instrument	accomplishment		
	Instrument/			
N+V	Locative	accomplishment		
N+V	Object	activity		

firecure	N+V	Locative	accomplishment	Cho
firestop	N+V	Object Manner/	activity	Cho
flashflood	N+V	Time Manner/	accomplishment	Cho
flashfreeze	N+V	Time	accomplishment	Cho
flatdive	A+V	Locative	activity	Cho
flatpack	A+V	Causality	accomplishment	Cho
flighttest	N+V	Time	activity	Cho
flowchart	N+V	Object	activity	Cho
fluecure	N+V	Instrument	accomplishment	Cho
flyblow	N+V	Agent	accomplishment	Cho
flycast	N+V	Object	accomplishment	Cho
flydrive	V+V	Coordinative	activity	Cho
flyfish	N+V	Instrument Manner/	activity	Cho
flypost	N+V	Time Manner/	achievement	Cho
flytip	N+V	Time	achievement	Cho
fonefuck	N+V	Instrument	activity	Cho
footprint	N+V	Instrument	accomplishment	Cho
footslog forcefeed (force-	N+V	Instrument	activity	Cho
feed)	N+V	Instrument	activity	both
forceland	N+V	Causality	achievement	Cho
forklift	N+V	Instrument Instrument/	accomplishment	Cho
formulafeed	N+V	Object	activity	Cho
foxhunt	N+V	Object	activity	Cho
foxtrot	N+V	Manner	activity	both
freeassociate	A+V	Manner	activity	Cho
freefall	A+V	Manner Causality/	accomplishment	Cho
freeload	A+V	Manner	activity	both
freeride	A+V	Manner	activity	Cho
freeskate	A+V	Manner	activity	Cho

Cho

both

Cho both

freewheel	A+V	Manner	activity	both
freezedry	V+V	Coordinative	accomplishment	Cho
freezeframe		~		
(treeze-trame)	V+N	Object	achievement	both
frenchfry	A+V	Manner	accomplishment	Cho
Frenchkiss	A+V	Manner	activity	Cho
frogmarch	N+V	Manner	activity	both
frontload	N+V	Locative	accomplishment	Cho
frostbite	N+V	Agent	accomplishment	Cho
fundraise gangbang (gang-	N+V	Object Agent/	activity	Cho
bang)	N+V	Locative	activity	both
gangpunch	N+V	Manner Agent/	activity	Cho
gangrape	N+V	Locative	activity	Cho
gatecrash ghostwrite (ghost-	N+V	Locative	achievement	both
write) giftwrap (gift-	N+V	Manner	activity	both
wrap)	N+V	Object	accomplishment	both
globetrot	N+V	Locative	activity	Cho
goldplate	N+V	Instrument	accomplishment	Cho
goosestep	N+V	Manner	activity	both
grantaid	N+V	Instrument	activity	Cho
greenmanure	N+V	Instrument	activity	Cho
greenwash	A+V	Causality	activity	LDOCE
gridlock	N+V	Object	accomplishment	Cho
groundbait	N+V	Locative Manner/	activity	Cho
guestconduct	N+V	Agent	activity	Cho
guesthost	N+V	Manner	activity	Cho
gutshoot	N+V	Locative	activity	Cho
hacksaw	V+V	Coordinative	activity	Cho
hairweave	N+V	Locative	activity	Cho
hallmark	N+V	Locative Instrument/	achievement	both
halterbreak	N+V	Causality	activity	Cho
handcancel	N+V	Instrument	accomplishment activity/	Cho
handcarry	N+V	Instrument	accomplishment	Cho
handcolor	N+V	Instrument	activity	Cho

handcraft	N+V	Instrument	accomplishment	Cho
handcrank	N+V	Instrument	activity	Cho
handcuff	N+V	Locative	accomplishment	both
handdecorate	N+V	Instrument	activity	Cho
handdeliver	N+V	Instrument	accomplishment	Cho
handdip	N+V	Instrument	achievement	Cho
handfeed	N+V	Instrument	activity	Cho
handgroom	N+V	Instrument	activity	Cho
handhold	N+V	Instrument	activity	Cho
handletter	N+V	Instrument	activity	Cho
handpaint	N+V	Instrument	activity	Cho
handpick	N+V	Instrument	achievement	Cho
handsnap	N+V	Instrument	accomplishment	Cho
handstamp	N+V	Instrument	achievement	Cho
handtool	N+V	Instrument	activity	Cho
handwash	N+V	Instrument	accomplishment	LDOCE
handwhisk	N+V	Instrument	activity	Cho
handwrite	N+V	Instrument	activity	Cho
hangglide	V+V	Coordinative	activity	Cho
hardboil	A+V	Causality	accomplishment	Cho
headbang	N+V	Object	activity	both
headbutt	N+V	Instrument	activity	both
headhunt	N+V	Object	activity	both
headreach	N+V	Object	accomplishment	Cho
heattreat	N+V	Instrument	activity	Cho
hedgehop	N+V	Locative	activity	Cho
heelflip	N+V	Instrument	accomplishment	LDOCE
hemstitch	N+V	Locative	activity	Cho
henpeck heroworship	N+V	Agent	activity	Cho
(-worship)	N+V	Object	state	both
highjump	A+V	Manner	accomplishment	Cho
highlight	A+V	Manner	accomplishment	both
highpressure	A+V	Manner	activity	Cho
hitchhike	V+V	Coordinative	activity	both
hogtie	N+V	Object	accomplishment	Cho
homedevelop	N+V	Locative	accomplishment	Cho
homeschool	N+V	Locative	activity	LDOCE

hoodwink	N+V	Instrument	accomplishment	both
hopscotch	V+N	Locative	activity	Cho
hotcomb	A+V	Manner	activity	Cho
hotpress	A+V	Manner	activity	Cho
hotwork	A+V	Manner	activity	Cho
housebreak	N+V	Locative	activity	Cho
houseclean	N+V	Locative	accomplishment	Cho
houseguest	N+V	Locative	activity	Cho
househunt	N+V	Object	activity	Cho
housekeep housesit (house-	N+V	Object	activity	Cho
sit)	N+V	Locative	activity	both
housetrain iceskate (ice-	N+V	Locative	activity	both
skate)	N+V	Locative	activity	both
Indianwrestle	N+V	Manner	activity	Cho
islandhop	N+V	Locative	activity	Cho
jackhammer	N+V	Instrument	activity	Cho
jackroll	N+V	Object	accomplishment	Cho
jampack	A+V	Manner	accomplishment	Cho
jaywalk	N+V	Manner	accomplishment	both
jobhop	N+V	Locative	activity	Cho
jobhunt	N+V	Object	activity	Cho
jobshare	N+V	Object	activity	both
joketruth	V+V	Coordinative	activity	Cho
јоурор	N+V	Causality	activity	Cho
joy <del>r</del> ide	N+V	Causality	activity	both
jump rope	V+N	Locative	activity	LDOCE
jumpcut jumpstart (jump-	V+V	Coordinative	accomplishment	Cho
start)	V+V	Coordinative	accomplishment	both
juryrig	A+V	Time	accomplishment	Cho
keelhaul	N+V	Locative	activity	both
keypunch	N+V	Instrument	achievement	Cho
keystroke kickstart (kick-	N+V	Object	activity	Cho
start)	V+V	Coordinative	achievement	both
kidnap	N+V	Object	accomplishment	both
kilndry	N+V	Locative	accomplishment	Cho

lambast(e )	V+V	Coordinative	activity	LDOCE
landfill	N+V	Locative	activity	Cho
lapweld	N+V	Causality	activity	Cho
leapfrog	V+N	Manner	achievement	both
lipread (lip-read)	N+V	Locative	activity	both
lip-synch	N+V	Instrument	activity	LDOCE
livetrap	A+V	Manner	accomplishment	Cho
lobbysit	N+V	Locative	state	Cho
logroll machinegun	N+V	Object	activity activity/	Cho
(machine-gun)	N+V	Instrument Instrument/	accomplishment	both
machinewash	N+V	Locative	accomplishment	Cho
mailorder	N+V	Instrument	accomplishment	Cho
manhandle	N+V	Manner	activity	both
mapread	N+V	Locative	activity	Cho
markettest	N+V	Locative	activity	Cho
massarrest	N+V	Manner	accomplishment	Cho
massmarket massproduce	N+V	Manner	activity	Cho
(-produce)	N+V	Manner	accomplishment	both
matchmark	N+V	Locative	achievement	Cho
matchmove	V+N	Object	accomplishment	Cho
meanstest	N+V	Object	activity	Cho
mindread	N+V	Locative	activity	Cho
mollycoddle	N+V	Manner	activity	both
moonwalk	N+V	Manner	activity	Cho
mountainclimb	N+V	Locative Causality/	activity	Cho
muckrake	N+V	Locative	activity	Cho
mudsling	N+V	Object	activity	Cho
mugshoot	N+V	Object	accomplishment	Cho
name-check namedrop (name-	N+V	Object	accomplishment	LDOCE
drop)	N+V	Object	achievement	both
naysay	A+V	Object	accomplishment	Cho
neckrein	N+V	Locative	activity	Cho

nitpick

nosedive

padlock

N+V

N+V

N+V

Object

Manner

Instrument

activity

activity

achievement

Cho

both

both
panbroil	N+V	Locative	accomplishment	Cho	
panfry	N+V	Locative	accomplishment	Cho	
papertrain	N+V	Locative	activity	Cho	
partake	N+V	Object	activity	LDOCE	
partexchange	A+V	Manner	accomplishment	Cho	
pettifog	A+V	Object	activity	Cho	
pigjump pinchhit (pinch-	N+V	Manner	accomplishment	Cho	
hit)	N+V	Time	achievement	both	
pintold	N+V	Locative	accomplishment	Cho	
pinpoint	N+V	Locative	achievement	both	
pinprick pistolwhip (pistol-	N+V	Instrument	achievement	Cho	
snip)	N+V N+V/	Instrument	activity	both	
placekick	V+V	Locative	accomplishment	Cho	
playact (play-act)	N+V	Manner	activity	both	
playfight pleabargain (plea	V+V	Coordinative	activity	Cho	
bargain)	N+V	Causality	accomplishment	both	
polejump	N+V	Instrument	accomplishment	Cho	
polevault	N+V	Instrument	accomplishment	Cho	
postmark	N+V	Locative	achievement	both	
potroast pottytrain (potty-	N+V	Locative	accomplishment	Cho	
train)	N+V	Locative	activity	both	
powerdive pressgang (press-	N+V	Manner Agent/	activity	Cho	
gang)	V+N	Locative	activity	both	
pressurecook	N+V	Instrument	activity activity/accomplishm	Cho	
proofread	N+V	Object	ent	both	
pubcrawl pushstart (push-	N+V	Locative	activity	Cho	
start)	V+V	Coordinative	accomplishment	both	
pussywhip	N+V	Object	activity	Cho	
quartersaw queuejump	N+V	Causality	activity	Cho	
(queue-jump)	N+V	Locative	accomplishment	both	
quickfreeze	A+V	Manner	accomplishment	Cho	
quickpitch	A+V	Manner	accomplishment	Cho	

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quickstep	A+V	Manner	activity	Cho
quitclaim	A+V	Causality	accomplishment Ch	
rabblerouse	N+V	Object	accomplishment	Cho
racewalk	V+V	Coordinative	activity	Cho
rackrent	V+N	Instrument Agent	activity	Cho
rainwash	N+V	(Force)	accomplishment	Cho
rankshift	N+V	Object	accomplishment	Cho
ratecap	N+V	Object	accomplishment	Cho
razorcut	N+V	Instrument	accomplishment	Cho
redbait	N+V	Object	activity	Cho
reverse engineer	A+V	Time	activity	LDOCE
right-click	A+V	Locative	achievement	LDOCE
rightsize	A+V	Causality	accomplishment	LDOCE
ringbark	V+N	Object	accomplishment	Cho
ringfence	N+V	Manner	accomplishment	both
roadblock	N+V	Locative	activity	Cho
roadtest	N+V	Locative	activity	both
rockclimb	N+V	Locative	activity	Cho
roleplay (role-	NT + N7	01:		1 .1
play) rollerskate (roller-	N+V	Object	activity	both
skate)	N+V	Instrument	activity	both
roughcast	A+V	Manner	activity	Cho
roughdry	A+V	Manner	accomplishment	Cho
roughhandle	A+V	Manner	activity	Cho
roughhew	A+V	Manner	activity	Cho
routemarch rubberstamp	N+V	Locative	activity	Cho
(-stamp)	N+V	Instrument	achievement	both
saddlestitch	N+V	Manner	activity	Cho
safeconduct	A+V	Manner	activity	Cho
safeguard	A+V	Causality	activity	both
saltglaze	N+V	Instrument	activity	Cho
sandblast	N+V	Instrument	accomplishment	both
sandcast	N+V	Locative	activity	Cho

Object

Instrument

Instrument

N+V

N+V

N+V

activity

activity

accomplishment

Cho

both

Cho

sandfight

screenprint

screentest

(screen print)

scrunchdry	V+V	Coordinative	accomplishment	Cho
sealift	N+V	Locative	accomplishment	Cho
seatbelt	N+V	Locative	accomplishment	Cho
shadowbox	N+V	Locative	activity	Cho
sharecrop	N+V	Manner	activity	Cho
shepherd	N+V	Object	activity	LDOCE
shiplap	N+V	Manner	activity	Cho
shoplift	N+V	Locative	accomplishment	both
shortweight	A+V	Manner	activity	Cho
shotblast	N+V	Instrument	accomplishment	Cho
showjump	N+V	Time	activity	Cho
shrinkwrap	V+V	Coordinative	accomplishment	Cho
shunpike	V+N	Object	activity	Cho
sidedress	N+V	Locative	activity	Cho
sideslip	N+V	Locative	accomplishment	Cho
sidestep	N+V	Locative	activity	both
sidestroke	N+V	Locative	activity	Cho
sideswipe	N+V	Locative	achievement	both
sightread (sight-	NT I NT	т.,		1 .1
	N+V	Ohiset	activity	Cha
signtsee	N+V	Ubject	activity	Cho
signtsing	N+V	Instrument		Cho
silverplate	N + V	Instrument	accomplishment	Cho
singleparent	A + V	Time	state	Cho
singlestep	A + V	Time	accomplishment	Cho
singletongue	A + V	Lime		Cho
skijump	N+V	Instrument	accomplishment	Cho
skindive	N + V	Instrument	activity	Cho
skinnydip	A + V	Manner	activity	Cho
skinpop	N+V	Locative	accomplishment	Cho h - th
skydive	N+V	Locative	activity	both
skyrocket	N+V	Locative	achievement	both
skywrite	N+V	Locative	activity	Cho
slamdance slamdunk (slam-	V + V	Coordinative	activity	Cho
aunk)	V + V	Coordinative	achievement	Doth
slavedrive	N+V	Object	activity	Cho
sleepwalk	V + V	Coordinative	state	Doth
slipcover	V + V	Coordinative	accomplishment	Cho

slipslide	V+V	Coordinative	activity	Cho
slipstitch	V+V	Coordinative	activity	Cho
smalltalk	A+V	Manner	activity	Cho
smarttalk	A+V	Manner	activity	Cho
smirkfrown	V+V	Coordinative	activity	Cho
smokesignal	N+V	Instrument	activity	Cho
smoothtalk	A+V	Manner	activity	Cho
snapshoot	V+V	Coordinative	activity	Cho
sneakpreview	V+V	Coordinative	activity	Cho
snowplow	N+V	Locative	activity	Cho
softboil	A+V	Causality	accomplishment	Cho
softland softpedal (soft-	A+V	Manner	accomplishment	Cho
pedal)	A+V	Causality	activity	both
softsell	A+V	Manner	activity	Cho
soothsay	N+V	Object	activity	Cho
spacewalk	N+V	Locative	activity	Cho
spearfish	N+V	Instrument	activity	Cho
speed-dial	N+V	Manner	achievement	LDOCE
speedread	N+V	Manner	activity	Cho
spellbind spellcheck (spell-	N+V	Instrument	accomplishment	Cho
check)	V+V	Coordinative	activity	both
spindry (spin-dry)	V+V	Coordinative	accomplishment	both
spitroast spoonfeed	N+V	Locative	accomplishment	Cho
(spoon-feed) spotcheck (spot	N+V	Instrument	activity	both
check)	N+V	Locative	accomplishment	both
spotlight	N+V	Locative	activity	both
spotweld	N+V	Locative	activity	Cho
spraydry spraypaint (spray-	V+V	Coordinative	accomplishment	Cho
paint) springclean	V+V	Coordinative	activity	both
(spring-clean)	N+V	Time	accomplishment	both
squaredance stagemanage	N+V	Locative	activity	Cho
(-manage)	N+V	Object	accomplishment	both
stagewhisper	N+V	Locative	activity	Cho
stallfeed	N+V	Locative	activity	Cho

stargaze steamclean (steam	N+V	Locative	activity	Cho
clean)	N+V	Instrument	accomplishment	both
steamheat	N+V	Instrument	activity	Cho
steeplechase	N+V	Object	activity	Cho
stillhunt	A+V	Manner	activity	Cho
stirfry (stir-fry)	V+V	Coordinative	accomplishment	both
stockpile	N+V	Object	activity	both
straphang	N+V	Locative	state	Cho
strikebreak	N+V	Object	accomplishment	Cho
stripmine (strip- mine) stripsearch (strip	V+V	Coordinative	activity	both
search)	V+V	Coordinative	activity	both
striptease	V+V	Coordinative	activity	Cho
studentteach	N+V	Agent	activity	Cho
stuntdouble	N+V	Time	activity	Cho
suckerpunch	N+V	Object	achievement	Cho
sugarcoat	N+V	Instrument	accomplishment	Cho
sunbathe	N+V	Locative	activity	both
sunburn	N+V	Locative	accomplishment	Cho
suntan	N+V	Locative	accomplishment	Cho
surfcast	N+V	Locative	accomplishment	Cho
sweettalk (sweet- talk)	A+V	Manner	activity	both
switchhit	V+V	Coordinative	state	Cho
tablehop	N+V	Locative	activity	Cho
tailormake	N+V	Agent	accomplishment	Cho
tailspin	N+V	Manner	activity	Cho
tailwalk	N+V	Instrument	activity	Cho
dance)	V+V	Coordinative	activity	both
tapedelay taperecord (tape	N+V	Instrument	accomplishment	Cho
record)	N+V	Locative Agent/	accomplishment	both
teamteach	N+V	Locative	activity	Cho
testcross testdrive (test-	V+V	Coordinative	accomplishment	Cho
drive)	V+V	Coordinative	activity	both

testfire	V+V	Coordinative	accomplishment	Cho
testfly	V+V V+N/V+	Coordinative	activity	Cho
testmarket	V	Locative	activity	Cho
text message	N+V	Object	activity	LDOCE
thumbindex	N+V	Manner	accomplishment	Cho
tiedye (tie-dye)	V+V	Coordinative	accomplishment	both
timelock	N+V	Time	achievement	Cho
timeshare	N+V	Time	activity	Cho
timeshift	N+V	Time	accomplishment	Cho
timestamp	N+V	Object	achievement	Cho
tinplate	N+V	Instrument	accomplishment	Cho
toedance toilettrain (toilet-	N+V	Locative	activity	Cho
train)	N+V	Locative	activity	both
tonguelash	N+V	Instrument	activity	Cho
tonguetie	N+V	Object	accomplishment	Cho
topdress	N+V	Locative	activity	Cho
topstitch touchtype (touch-	N+V	Locative	activity	Cho
type)	V+V	Coordinative	activity	both
trademark	N+V	Causality	accomplishment	Cho
troubleshoot	N+V	Locative	accomplishment	Cho
tumbledry	V+V	Coordinative	accomplishment	Cho
typecast	N+V	Locative	accomplishment	both
typeset	N+V	Object	activity	both
typewrite	V+V	Coordinative	activity	Cho
vacuumclean	N+V	Instrument	accomplishment	Cho
videotape	N+V	Locative	accomplishment	LDOCE
vouchsafe	V+A	Causality	activity	both
wallpaper	N+V	Locative Time/	activity	both
wardance	N+V	Manner	activity	Cho
watercool	N+V	Instrument	accomplishment	Cho
waterflood	N+V	Instrument	activity	Cho
waterjacket waterski (water	N+V	Instrument	accomplishment	Cho
ski)	N+V	Locative	activity	both
watersoak	N+V	Instrument	activity	Cho
waylay	N+V	Locative	activity	both

waymark	N+V	Locative	achievement	Cho
weekend	N+V	Time	activity	both
wetmop wetnurse (wet-	A+V	Manner	accomplishment	Cho
nurse) wheelclamp	A+V	Manner	activity	both
(wheel-clamp)	N+V	Locative	accomplishment	both
whiplash	N+V	Instrument	activity	Cho
whipsaw	V+V	Coordinative	activity	Cho
whipstitch	V+V	Coordinative	activity	Cho
whitewash	A+V	Causality	activity	both
wholesale	A+V	Manner	activity	Cho
windowdress	N+V	Object	activity	Cho
windowshop windsurf (wind-	N+V	Locative	activity	Cho
surf)	N+V	Instrument	activity	both
winterfeed	N+V	Time Agent	activity	Cho
winterkill	N+V	(Force)	accomplishment	Cho
wirebrush	N+V	Instrument	activity	Cho
wiredraw	N+V	Object	activity activity/	Cho
wiretap	N+V	Locative	accomplishment	both
wisecrack wolfwhistle (wolf-	A+V	Manner	activity	both
whistle)	N+V	Manner	achievement	both
woolgather	N+V	Object	activity	Cho
workharden zip-tie	N+V N+V	Instrument Instrument	accomplishment accomplishment	Cho LDOCE

# Appendix B: Questionnaire study

## 1 Questionnaire forms

## 1.1 Questionnaire 1

Questionnaire on English Verbal Compounds

Thank you for participating in this study, which aims at gaining insights into how complex English verbs are being used. All information gathered will only be used for research purposes. If you have any questions concerning the content or results of this survey, please email questionnaire@angela-lechner.de.

Thank you for your cooperation!

1. Instructions:

Please choose the most plausible meaning of the following words. Which of the two paraphrases seems more likely to you? If you find both plausible, tick both. If no option seems plausible to you, tick neither of them and, where possible, offer a third one.

There are no right or wrong answers. Please answer quickly by ticking the option that best reflects your gut feeling.

-	
to beauty-	to take an extra nap or sleep long enough to stay healthy
sleep	and good-looking
	to sleep under anaesthesia during aesthetic surgery
to sun-	to sit or lie outside in the sun, especially in order to
bathe	become brown
	to take a bath in an outdoor bath tub
to rumour-	to spread the rumour that happened
spread	to spread a certain story as a rumour
to	to move house repeatedly
househop	jocular of a child who has passed crawling stage: to move
	through the whole house, exploring

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to laser		to treat the skin with a laser to remove tattoos, permanent
point		make-up etc. point by point
		to indicate direction by pointing somewhere with the help
		of a laser beam
to flypick		to remove flies and other insects from a horse's body as
		part of grooming
		to illegally pick something, e.g. fruits or flowers, "on the
	_	fly", i.e. by passing quickly
to shame-		to tell a lie about or hide something one is ashamed of
he		to shame or disgrace someone by telling lies about
		something
to hard		to stephe compone's sheet with the hard to show
to nand-		affection
K155		to kiss someone on the hand
		to kiss solitone on the name
to		to stand with the help of one's hands holding on to
handstand		something to avoid losing one's footing
		to stand upside-down on one's hands while the feet are in
		the air
to		to dive head-first into water
headplunge		as a form of bullying, esp. at schools: lowering someone
	_	head-first into a toilet bowl
to fear-		before or during an important exam/speech etc.:
bleed		perspiring heavily for fear and excitement
		to start bleeding (e.g. have a nosebleed) whenever one is
		excited or anxious
to bellykiek		iocular to drive or strike something (a ball) with one's
10 Denykick	-	belly
		to strike someone in the stomach area
		to talle solicone in the stollarn area
	_	

to lion-	to reduce the fierceness of a lion and render it docile
tame	to control and calm down exuberant kids or pupils
to clod-	to move from one mishap to another
hop	to walk in a clumsy, awkward manner
to stick-	to admonish pupils by tapping a stick against the
discipline	blackboard, as a warning to be quiet
	to beat someone's fingers with a stick, as an educational
	method, esp. at school
to fabric-	to add a liquid when washing clothes to soften and
soften	freshen the laundry
	to soften something by wrapping it with fabric
to	to attach a label to a piece of clothing in order to identify
nametape	the owner
	of a teacher: to make pupils tape their names in order for
	the teacher to memorize the sound of the child's voice
	plus its name
to eyeread	to read something with one's (own) eyes
	to recognize someone's feelings/emotions from his or her
	eyes/facial expression
to charm-	to emotionally tie someone to oneself by using one's
snare	beauty or sweetness; often neg. as a strategy for achieving
	personal goals
	in fairy tales: to capture someone or something by using
	magic power
to fire-eat	of an artist: to (pretend to) swallow fire
	to be fond of fighting, to seek occasion to quarrel or fight
to side	to order some food to be eaten with the main meal
order	to order something without queuing, by pushing in from
	 the side

to	to arrive at church just in time for the celebration of mass
massarrive	esp. in ho(s)tels: said of people arriving in large number at
	a certain time
to coldvisit	to visit someone unannounced or without being invited
	to visit someone without showing signs of happiness to
	see him/her again
to sticker-	to display the price of an item for sale with the help of an
price	adhesive label attached to it, the price often subject to a
	negotiated discount
	to evaluate the price of a car by taking into account its
	inspection sticker (as vehicles that have just undergone
	inspection might realize a higher price)
to	to constantly annoy someone/beg for something in order
headpeck	to get one's way
	to kiss someone lightly on his/her head

### 2. Instructions:

Please judge the acceptability of the following words and sentences. Even if you have never come across these words, do they sound English to you, could you imagine them being used in speech or writing?

There are no right or wrong answers. Please answer quickly by ticking the option that best reflects your gut feeling.

	=	This word/sentence sounds completely unacceptable.								
-	=	This word/sentence sounds rather unacc	This word/sentence sounds rather unacceptable.							
+	=	This word/sentence sounds slightly odd	This word/sentence sounds slightly odd but could possibly							
		be used.								
++	=	This word/sentence sounds acceptable/I could imagine it								
being used.										
to speed	-date			-	+	++				
My date was a disaster. I could hardly get a word in edgeways + +					++					

and he <u>question-fired</u> me about my future plans, my ex-lovers			
and if I wanted to have kids.			
to table-eat	 -	+	++
In a restaurant: "Can I <u>cardpay</u> my bill or do you only accept	 -	+	++
cash?"			
to colourtaste	 -	+	++
Could you please take a bucket of water and <u>spongeclean</u> the	 -	+	++
floor?			
to stamp-collect	 -	+	++
We had to timecut our meeting due to an intervening matter	 -	+	++
with an important business partner.			
to cherry-pick	 -	+	++
My mom paid for my dress, but in return she made me potato	 -	+	++
<u>peel</u> for one hour.			
to hand-signal	 -	+	++
It's impossible to <u>hand-stamp</u> every single letter, so we had this	 -	+	++
process automated many years ago.			
to airtest	 -	+	++
This compromise has been the only way to <u>face-save</u> our	 -	+	++
company.			
to stone-wash	 -	+	++
In Asia people <u>floorsit</u> , they even eat and sleep on the bare floor.	 -	+	++
to knife-open	 -	+	++
Peter spends his life in social networks. He <u>friendpiles</u> hundreds	 -	+	++
of virtual contacts without knowing one of them in person.			
to crutchwalk	 -	+	++
Our washing machine is broken! Now I have to <u>handwash</u> all	 -	+	++
our clothes!	_		
to window-clean	 -	+	++
In my childhood my parents forced me to <u>schoolhop</u> a lot, so I	 -	+	++
was used to making friends and losing them soon after.	_		
to food-poison	 -	+	++
Years of experience allow us to <u>purpose-build</u> vehicles meeting	 -	+	++
our clients' individual requirements.			
to trust-gamble	 -	+	++
Grandpa is still in good condition. He has to <u>stickwalk</u> , but	 -	+	++

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apart from that he's fit as a fiddle.			
to pillsleep	 -	+	++
Frankly, you really have to <u>air-freshen</u> your car!	 -	+	++
to palm-read	 -	+	++
I <u>shotgun-married</u> my husband in Las Vegas and two months	 -	+	++
later Louis was born!			
to homespin	 -	+	++
My mom always tells us off when we <u>hand-eat</u> sausages. She	 -	+	++
always says "Don't play with your food, use your knife and			
fork!"			
to garden-party	 -	+	++
He is <u>weed-sowing</u> rumours about Taylor and Jim, which will	 -	+	++
spread all over the village in no time.			
to coldeat	 -	+	++
After my dental surgery I felt like a ten month old baby, having	 -	+	++
to <u>mashfeed</u> on potatoes and carrots.			
to fingercomb	 -	+	++
Fruits and vegetables of different colour contain different vital	 -	+	++
nutrients. In our four-hour cookery course you can learn how to			
<u>colourcook</u> . Join us now!			
to curtain-raise	 -	+	++
On my trip around the world I made a lot of friends and always	 -	+	++
found somewhere to <u>couchsleep.</u>			
to earshoot	 -	+	++
I know you're feeling lonely, but if you want to lose some weight	 -	+	++
you shouldn't <u>comfort-eat</u> tons of cookies every night.			
to windowcheck.	 -	+	++
After the war, my grandpa came to Germany and guestworked	 -	+	++
as a dyer in the textile industry.			
to airstroll	 -	+	++
I'd advise you to <u>mudbathe</u> for half an hour. You'll feel like a	 -	+	++
new woman!			
to foot-drag	 -	+	++
I <u>watertested</u> my new mascara at the beach and I can tell you	 -	+	++
it's worth the money!			
Emma is a real artist. She <u>figure-skates</u> even the most	 -	+	++

challenging moves without d	lifficulty.
Please provide some in	formation for statistical purposes:
Age:	
Nationality:	
Native Language:	English
	Other than English:
English proficiency	□ School ( years)
(only non-native	University ( years)
speakers):	Stay/work abroad in an English-speaking
	environment ( months)
Major:	

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# 1.2 Questionnaire 2

Questionnaire on English Verbal Compounds

Thank you for participating in this study, which aims at gaining insights into how complex English verbs are being used. All information gathered will only be used for research purposes. If you have any questions concerning the content or results of this survey, please email questionnaire@angela-lechner.de.

Thank you for your cooperation!

1. Instructions:				
Please choose	Please choose the most plausible meaning of the following words. Which of			
the two parap	ohrase	es seems more likely to you? If you find both plausible, tick		
both. If no op	ption	seems plausible to you, tick neither of them and, where		
possible, offe	r a th	ird one.		
There are no	right	or wrong answers. Please answer quickly by ticking the		
option that b	est re	flects your gut feeling.		
to speed-		to date several potential partners (often at organized		
date		events) in a short period of time		
		to come into contact with amphetamine-based drugs for		
		the first time		
to table-eat		to sit at the dining table while eating, rather than eating in		
		front of the TV or the like		
		said of wood boring beetles which feed upon wooden		
		furniture		
to		of food: to be visually appetizing due to bright colours		
colourtaste		as a game for children: to guess the colour of gummy		
		bears/skittles from their taste		
to stamp-		to collect debts by searching someone's place and		
collect		marking confiscated goods with a stamp		
		to practise philately, to collect postage stamps		

to cherry-		to choose the best things or people you want from a
pick		group before anyone else has the chance to take them
		to pick cherries from the tree in order to eat them right
		away
to hand-		in public traffic: to manually indicate one's intention to
signal		turn etc.
		to stop a bus by giving a hand sign
to airtest		to test the air, e.g. with regard to oxygen content
		to test something (e.g. a vehicle) in the air for functional
		efficiency
to stone-		of jeans: to wash with small stones in order to give them a
wash		worn-out look
		to clean stone facades and stone floors with a special
		high-pressure technique
to knife-		to open something (e.g. a parcel or an envelope) with the
open		help of a knife
		to open a folding knife (e.g. a pocket knife)
to		to move forward in an awkward way, as if one needed
crutchwalk		crutches
		to walk with the help of crutches, e.g. during recovery
		after an accident
to window-		to clean something while standing at the window for
clean		better lighting
		to professionally clean windows
to food-		of contaminated food: to transmit food-borne illnesses
poison		to deliberately poison food in order to harm someone
to trust-		to engage in gambling by being positive about winning
	_	

	things; to risk his own trustworthiness by doing so
to pillsleep	to be fast asleep as if having taken sleeping pills
to prostep	to take sleeping pills before going to bed to cure insomnia
	to une oneping plus before going to bed to eare moonline
to palm-	to tell someone's fortune by looking at the lines of his
read	palm
	to read information from one's palm, e.g. at school in
	order to cheat
to	to produce something which is simple or unprofessional
homespin	to produce yarn with the help of a spinning wheel for
	one's personal need
to garden-	to give or attend a party in the garden, often with
party	barbecue
	derogatory: to give or attend a snooty and boring party
	without having fun
to coldeat	to eat something when it is cooled down after cooking
	to eat something which is hard to digest straight after a
	long period of liquid diet, e.g. after gastrointestinal illness,
	without stepwise preparation of the body
to	to run your fingers through your hair, to detangle it, for
fingercomb	lack of a comb
	to search thoroughly and exhaustively by checking every
	item with one's own hands
to curtain-	to perform as an opening band for the main act
raise	to raise a child isolated from the outside world, behind
	drawn curtains
to earshoot	to accidentally pick up a piece of news by happening to
	stand close enough to the speaker
	to apply an ear tag to pigs, cattle and sheep for
	identification

to window-	to check if someone is present by throwing a glance
check	through the window
	to take a thorough look at the shop windows before
	deciding to go in
to airstroll	to dreamily walk without watching one's step, looking
	towards the sky; to have one's head in the clouds
	to take a walk in the fresh air, in order to relax and/or to
	take a break
to foot-	to deliberately delay something or be slow to do
drag	something
	of a child: to hold tight to its mother's leg, making it
	difficult for her to move forward

2. Instructions:

Please judge the acceptability of the following words and sentences. Even if you have never come across these words, do they sound English to you, could you imagine them being used in speech or writing?

There are no right or wrong answers. Please answer quickly by ticking the option that best reflects your gut feeling.

- -- = This word/sentence sounds completely unacceptable.
- This word/sentence sounds rather unacceptable.
  This word/sentence sounds slightly odd but coul
- + = This word/sentence sounds slightly odd but could possibly be used.
- ++ = This word/sentence sounds acceptable/I could imagine it being used.

to question-fire	 -	+	++
Alyssa is obsessed with being perfect. She feeds on apples and	 -	+	++
water and <u>beauty-sleeps</u> three hours after work.			
to cardpay	 -	+	++
When I am at the pool, I can <u>sun-bathe</u> and read and doze.	 -	+	++
to spongeclean	 -	+	++

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I was fired after a colleague had <u>rumour-spread</u> that I was	 -	+	++
swiping office supplies.			
to timecut	 -	+	++
My dad worked as an artist and couldn't stay in one place for	 -	+	++
very long. So we were forced to <u>househop</u> from one city to			
another, never really making friends.			
to potato peel	 -	+	++
I hate it when he <u>laser points</u> to my face, 'cause I'm scared I	 -	+	++
could go blind.			
to hand-stamp	 -	+	++
On my way home I <u>flypicked</u> some apples from our neighbour's	 -	+	++
garden. I'm glad nobody noticed!			
to face-save	 -	+	++
I <u>shame-lied</u> about my job as a dishwasher since I didn't want	 -	+	++
to lose my face in front of my friends.			
to floorsit	 -	+	++
He <u>hand-kissed</u> me goodbye and left.	 -	+	++
to friendpile	 -	+	++
Do you want to see what we've learned in P.E.? I can	 -	+	++
handstand for half an hour without falling over!			
to handwash	 -	+	++
Bullying was the reason I changed schools. One day they even	 -	+	++
headplunged me into the girls' toilet.			
to schoolhop	 -	+	++
I found myself facing a dozen managers, <u>fear-bleeding</u> from every	 -	+	++
pore.			
to purpose-build	 -	+	++
Obelix can <u>bellykick</u> Roman soldiers two miles even without the	 -	+	++
magic potion.			
to stickwalk	 -	+	++
As a teacher I need all my strength and patience to <u>lion-tame</u>	 -	+	++
28 youngsters.			
to air-freshen	 -	+	++
This is supposed to look elegant, so please don't <u>clod-hop</u> . We	 -	+	++
need smooth, flowing movements!			
to shotgun-marry	 -	+	++

Grandpa: When I was a little boy teachers didn't use verbal	 -	+	++
reprimands at school. No, they <u>stick-disciplined</u> their pupils!			
to hand-eat	 -	+	++
This towel is really itchy. Don't you <u>fabric-soften</u> your clothes?	 -	+	++
to weed-sow	 -	+	++
I <u>nametape</u> all of my kids' clothes to avoid them being mixed	 -	+	++
ир.			
to mashfeed	 -	+	++
Don't lie to me! I can <u>eyeread</u> your anger though you try to hide	 -	+	++
it.			
to colourcook	 -	+	++
She <u>charm-snared</u> him in her net of lies and control, entangling	 -	+	++
him with her beauty until he was no longer able to escape.			
to couchsleep	 -	+	++
My dad is a great artist, but I'm always a bit scared when he	 -	+	++
<u>fire-eats</u> giant flames.			
to comfort-eat	 -	+	++
I'll have the roast chicken, please. And I would like to <u>side</u>	 -	+	++
order some fries and a salad.			
to guestwork	 -	+	++
People tend to massarrive around noontime, so the reception	 -	+	++
desk is busy from 11:00 until 14:00.			
to mudbathe	 -	+	++
I can't stand my mother-in-law <u>coldvisiting</u> us, but my husband	 -	+	++
even seems to like these kinds of surprises.			
to watertest	 -	+	++
They <u>sticker-price</u> all items, but there is always a chance to	 -	+	++
bargain a bit!			
to figure-skate	 -	+	++
He had been <u>headpecking</u> me for two weeks, so I finally gave in	 -	+	++
and let him go.			

Please provide some information for statistical purposes:		
Age:		
Nationality:		
Native Language:	English	
	□ Other than English:	
English proficiency	□ School ( years)	
(only non-native	University ( years)	
speakers):	□ Stay/work abroad in an English-speaking	
	environment ( months)	
Major:		

## 1.3 Questionnaire 3

Questionnaire on English Verbal Compounds

Thank you for participating in this study, which aims at gaining insights into how complex English verbs are being used. All information gathered will only be used for research purposes. If you have any questions concerning the content or results of this survey, please email questionnaire@angela-lechner.de.

Thank you for your cooperation!

1. Instructions:

Please choose the most plausible meaning of the following words. Which of the two paraphrases seems more likely to you? If you find both plausible, tick both. If no option seems plausible to you, tick neither of them and, where possible, offer a third one.

There are no right or wrong answers. Please answer quickly by ticking the option that best reflects your gut feeling.

-	
to question-fire	to pester someone with questions, hardly giving him
	time to answer
	to sightlessly shoot around, unsure about the target
to cardpay	to stop carrying cash, paying everything by card
	instead
	to pay a bill using a credit or debit card
to spongeclean	to remove dirt from a sponge
	to use a sponge for cleaning something
to timecut	to terminate e.g. a meeting earlier than planned due to
	an unexpected event
	to reduce the length of a movie by removing certain
	scenes
to potato peel	to remove the skin of potatoes

	to occupy oneself with minor things, waste time
	doing things of minor importance
to hand-stamp	to mark someone's hand with a rubber stamp, e.g. in
	clubs, showing that the entrance fee has been paid
	to stamp or postmark something, e.g. a letter, by hand
to face-save	to avoid being disgraced or humiliated
	to prevent one's facial skin from ageing by using
	special beauty products
to floorsit	said of foreign cultures, e.g. Asian: to perform most
	activities (eating, watching TV etc.) sitting (on mats)
	on the floor
	to pay careful attention to oneself and esp. others in
	order to avoid damaging/scratching (new and
	expensive) flooring
to friendpile	to collect as many virtual contacts as possible and add
	them as "friends" (e.g. on Facebook)
	in sport: to jump on top of each other on the floor,
	an expression of celebration or gesture of victory
to	to wash one's hands, normally with water and soap
handwash	to wash (e.g. a piece of clothing) by hand, instead of
	in a washing machine
to schoolhop	to walk light-heartedly, in a hopping manner, to
	school
	to repeatedly change schools
to purpose-	to produce something for a special purpose
build	to set oneself a target
to stickwalk	esp. of old persons: to be supported by a stick when
	walking
	to move forward in a stiff way, resembling a stick

to air-freshen	to freshen and cool down a room by letting in fresh
	air or with the help of a fan
	to freshen the air in a room or vehicle by using
	artificial fragrances etc.
to shotgun-	to be forced under threat of violence to marry
marry	someone
	to marry in haste (esp. because of pregnancy)
to hand-eat	to eat without using cutlery, to eat with bare hands
	of tame animals: to eat straight out of a person's hand
to weed-sow	to put out a rumour, which subsequently spreads with
	immense rapidity
	to grow weed, i.e. marijuana, for private use
to mashfeed	production step in brewing: to strain mash (=a
	mixture of ground malt and hot water) into a brew
	pot for further processing
	said of toothless people or after a dental surgery: to
	feed upon mashed or puréed food
to colourcook	to cook in a special, healthy manner, using ingredients
	(fruits/vegetables) of different colours containing
	different nutrients
	to cook a very appetizing, visually appealing, colourful
	meal
to couchsleep	when travelling: to stay over at someone's place,
	rather than staying in a (more expensive) ho(s)tel
	to fall asleep in front of the TV and spend the night
	on the couch
to comfort-eat	to eat convenience food because of one's laziness to
	cook
	to eat in order to relax or console oneself without

	being really hungry
to guestwork	to work in a foreign country for a limited period of
	time
	to gain insight into a company during a short trial
	internship
to mudbathe	derogatory of a person: to look filthy, to lack personal
	hygiene
	to take a bath in (heated) mud, esp. for medical or
	therapeutic reasons
to watertest	to test water, e.g. with regard to its quality or
	pollutional index
	to test a product or a vehicle in water for functional
	efficiency
to figure-skate	to skate on ice by moving in certain patterns
	to skate on ice, carving patterns on the surface of the
	ice rink; as an art form

### 2. Instructions:

Please judge the acceptability of the following words and sentences. Even if you have never come across these words, do they sound English to you, could you imagine them being used in speech or writing?

There are no right or wrong answers. Please answer quickly by ticking the option that best reflects your gut feeling.

	=	This word/sentence sounds completely unacceptable.
--	---	--

- = This word/sentence sounds rather unacceptable.

+	=	This word/sentence sounds slightly odd but could possibly be u
++	=	This word/sentence sounds acceptable/I could imagine it being

			1
to beauty-sleep	 -	+	++
I <u>speed-dated</u> five guys within two hours!	 -	+	++
to sun-bathe	 -	+	++

My mum can't stand us eating in front of the TV. She wants	 -	+	++
that we <u>table-eat</u> together, exchanging news of the day.			
to rumour-spread	 -	+	++
I know a fun game: We <u>colourtaste g</u> ummy bears with our eyes	 -	+	++
closed. But once you guess wrong, you're out and won't get any			
more!			
to househop	 -	+	++
My dad was an avid philatelist. When I was five I was so	 -	+	++
fascinated by all those tiny pictures that I wanted to <u>stamp-</u>			
<u>collect</u> myself.			
to laser point	 -	+	++
Music consumers are <u>cherry-picking</u> songs like Shaggy's It	 -	+	++
Wasn't Me', not downloading whole albums.			
to flypick	 -	+	++
I <u>hand-signalled</u> a left turn, but obviously he didn't see me. The	 -	+	++
next moment, I found myself in hospital.			
to shame-lie	 -	+	++
Each parachute is thoroughly <u>airtested</u> before it leaves our	 -	+	++
factory.			
to hand-kiss	 -	+	++
If you want I can show you how to <u>stone-wash</u> your jeans. You	 -	+	++
really don't have to spend a fortune for this look!			
to handstand	 -	+	++
He <u>knife-opened</u> the parcel, curious what he'd find inside.	 -	+	++
to headplunge	 -	+	++
After the accident I had to <u>crutchwalk</u> for a while.	 -	+	++
to fear-bleed	 -	+	++
In my job you can't be afraid of heights. My dream would be to	 -	+	++
window-clean the Empire State Building!			
to bellykick	 -	+	++
On my trip to Asia I got <u>food-poisoned</u> and spent 5 days in	 -	+	++
hospital.			
to lion-tame	 -	+	++
I can't hear your lies anymore. You are <u>trust-gambling</u> with me!	 -	+	++
to clod-hop	 -	+	++
My doctor said something about post-traumatic sleep	 -	+	++

### Appendix

deprivation and that I would have to <u>pillsleep</u> for a while until			
things get back to normal.			
to stick-discipline	 -	+	++
This lady pretended to <u>palm-read</u> my future and asked a	 -	+	++
ridiculously high price for her "service".			
to fabric-soften	 -	+	++
You should really seek professional advice and stop	 -	+	++
homespinning what you think are solutions.			
to nametape	 -	+	++
We'd like to <u>garden-party</u> with all our friends tonight. Would you like to come too?	 -	+	++
to everyad		-	<b></b>
Just leave the south over there I will coldect it later!	 -	-	
to charm snam	 -	-	++
Pomone the surface and carefully fingercome your hair If you	 -	- -	++
Nemove the threes and the sure will disattean	 -	Ŧ	++
to fine eat			
10 jire-eui	 -	+	++
W e were tucky to be chosen to <u>curtain-raise</u> Wiadonna's show.	 -	+	++
to side order	 -	+	++
Guess what! I just got <u>earshot / earshooted</u> the latest gosstp	 -	+	++
about 1 ina and her new lover!			
to massarrive	 -	+	++
I always <u>windowcheck</u> , the stores before I decide to go in.	 -	+	++
to coldvisit	 -	+	++
Sometimes I think that he's not of this world. He <u>airstrolls</u>	 -	+	++
with his head in the clouds and seems to completely forget where			
he is.			
to sticker-price	 -	+	++
We are all working very hard, but Mike is <u>foot-dragging</u> the	 -	+	++
whole project!	 		
to headpeck	 -	+	++

Please provide some inf	formation for statistical purposes:
Age:	
Nationality:	
Native Language:	English
	□ Other than English:
English proficiency	School ( years)
(only non-native	University ( years)
speakers):	□ Stay/work abroad in an English-speaking
	environment ( months)
Major:	

# 2 Questionnaire responses

## 2.1 Questionnaire 1

The following table contains the results of the first part of the questionnaire study, i.e. the comprehension task. The numbers following the test verbs in the table below refer to the meaning options that were offered in the order as given above in section 1 (Questionnaire forms).

		Questionnaire #											
	1	2	3	4	5	6	7	8	9	10	11	12	
beauty-sleep 1	1	1		1	1	1	1	1	1	1	1	1	
beauty-sleep 2													
sun-bathe 1	1	1	1	1	1	1	1	1	1	1	1	1	
sun-bathe 2													
rumour-spread 1	1					1	1	1					
rumour-spread 2		1			1	1			1	1	1		
househop 1	1	1		1	1	1	1	1		1	1	1	
househop 2													
laser point 1	1				1								
laser point 2		1	1				1	1	1	1	1	1	
flypick 1					1			1		1	1		
flypick 2	1	1		1			1					1	
shame-lie 1		1			1	1				1		1	
shame-lie 2	1			1			1						
hand-kiss 1													
hand-kiss 2	1	1	1	1	1	1	1	1		1	1	1	
handstand 1													
handstand 2	1	1	1	1	1	1	1	1	1	1	1	1	
headplunge 1	1	1		1	1	1	1		1		1	1	
headplunge 2						1				1		1	
fear-bleed 1							1						
fear-bleed 2	1	1			1					1		1	
bellykick 1												1	

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bellykick 2	1	1	1			1	1	1	1	1	1	
lion-tame 1	1	1		1	1	1	1	1	1	1	1	1
lion-tame 2									1			
clod-hop 1												1
clod-hop 2	1	1			1		1			1	1	
stick-discipline 1	1				1		1					
stick-discipline 2		1								1		1
fabric-soften 1	1	1		1	1	1	1	1		1	1	1
fabric-soften 2												
nametape 1	1	1	1		1	1	1	1	1	1	1	1
nametape 2												
eyeread 1					1							
eyeread 2	1	1				1	1		1	1		1
charm-snare 1		1			1	1	1					1
charm-snare 2	1								1	1		
fire-eat 1	1	1		1	1	1	1	1	1	1	1	1
fire-eat 2												
side order 1	1	1	1	1	1	1	1		1	1	1	1
side order 2												
massarrive 1												
massarrive 2		1				1	1	1		1		1
coldvisit 1	1	1			1	1	1		1	1		1
coldvisit 2												
sticker-price 1	1	1			1	1	1		1	1		1
sticker-price 2												
headpeck 1	1	1			1							
headpeck 2						1	1			1		1

					Ques	tionn	aire #				
	13	14	15	16	17	18	19	20	21	22	23
beauty-sleep 1	1	1	1	1	1	1	1	1	1	1	1
beauty-sleep 2											
sun-bathe 1	1	1	1	1	1	1	1	1	1	1	1
sun-bathe 2											
rumour-spread 1	1	1	1			1	1				
rumour-spread 2			1	1				1	1		1
househop 1		1	1	1		1	1	1		1	1
househop 2											
laser point 1											
laser point 2	1	1	1	1	1	1		1	1	1	1
flypick 1			1						1	1	
flypick 2			1	1	1						1
shame-lie 1			1					1	1	1	
shame-lie 2				1							1
hand-kiss 1											
hand-kiss 2	1	1	1			1		1	1	1	1
handstand 1											
handstand 2	1	1	1	1	1	1	1	1	1	1	1
headplunge 1	1	1	1		1	1		1	1	1	1
headplunge 2											
fear-bleed 1											
fear-bleed 2			1		1						1
bellykick 1											
bellykick 2	1	1	1	1	1	1		1	1		1
lion-tame 1		1	1		1	1	1	1		1	
lion-tame 2		1			1	1					1
clod-hop 1											
clod-hop 2		1	1	1	1	1	1	1		1	1
stick-discipline 1											
stick-discipline 2		1	1					1	1	1	1
fabric-soften 1	1	1	1	1	1	1	1	1	1	1	1

fabric-soften 2											
nametape 1	1	1	1	1	1	1	1			1	1
nametape 2											
eyeread 1								1			
eyeread 2			1							1	1
charm-snare 1			1					1	1	1	1
charm-snare 2			1						1		
fire-eat 1	1	1	1	1	1	1	1		1	1	1
fire-eat 2								1			
side order 1	1	1	1	1	1	1	1	1	1	1	1
side order 2											
massarrive 1											
massarrive 2				1	1		1		1	1	1
coldvisit 1	1	1	1	1	1			1	1	1	1
coldvisit 2											
sticker-price 1		1	1	1	1			1	1	1	
sticker-price 2											1
headpeck 1								1		1	1
headpeck 2		1	1	1					1		

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					Ques	tionn	aire #				
	24	25	26	27	28	29	30	31	32	33	34
beauty-sleep 1	1	1	1	1	1	1	1		1	1	1
beauty-sleep 2											
sun-bathe 1	1	1	1	1	1	1	1	1	1	1	1
sun-bathe 2											
rumour-spread 1	1		1	1			1			1	
rumour-spread 2	1	1				1		1	1	1	1
househop 1				1	1	1	1	1	1	1	1
househop 2											
laser point 1											1
laser point 2	1	1	1	1	1	1	1	1	1	1	
flypick 1					1			1			1
flypick 2						1	1		1	1	
shame-lie 1		1	1			1	1	1			
shame-lie 2					1					1	1
hand-kiss 1											
hand-kiss 2	1	1	1	1	1	1	1	1		1	1
handstand 1											
handstand 2	1	1	1	1	1	1	1	1	1	1	1
headplunge 1	1	1	1	1	1	1	1	1	1	1	1
headplunge 2											
fear-bleed 1					1					1	
fear-bleed 2		1				1		1			1
bellykick 1									1		
bellykick 2	1	1	1	1	1	1		1			1
lion-tame 1	1	1	1	1		1				1	1
lion-tame 2	1	1	1		1		1	1	1	1	
clod-hop 1			1							1	
clod-hop 2		1	1		1	1	1	1	1	1	1
stick-discipline 1								1			1
stick-discipline 2	1		1	1	1	1	1		1		
fabric-soften 1	1	1	1	1	1	1	1	1	1	1	1

fabric-soften 2											
nametape 1	1	1		1	1	1	1	1		1	1
nametape 2										1	
eyeread 1				1						1	
eyeread 2			1		1	1	1	1	1	1	1
charm-snare 1	1	1	1	1		1	1	1			1
charm-snare 2		1	1		1					1	
fire-eat 1	1	1	1	1	1	1	1	1	1	1	1
fire-eat 2											
side order 1	1	1	1	1	1	1		1	1	1	1
side order 2							1				
massarrive 1											
massarrive 2	1	1		1	1	1		1		1	1
coldvisit 1	1		1	1	1	1	1	1	1	1	
coldvisit 2											1
sticker-price 1	1	1	1		1	1	1	1		1	
sticker-price 2				1					1	1	1
headpeck 1	Γ								1	1	
headpeck 2	1		1		1	1		1			1

	Questionnaire #
	35
beauty-sleep 1	1
beauty-sleep 2	
sun-bathe 1	1
sun-bathe 2	
rumour-spread 1	1
rumour-spread 2	
househop 1	1
househop 2	
laser point 1	
laser point 2	1
flypick 1	
flypick 2	1
shame-lie 1	1
shame-lie 2	
hand-kiss 1	
hand-kiss 2	1
handstand 1	
handstand 2	1
headplunge 1	1
headplunge 2	
fear-bleed 1	
fear-bleed 2	1
bellykick 1	
bellykick 2	1
lion-tame 1	
lion-tame 2	1
clod-hop 1	
clod-hop 2	1
stick-discipline 1	1
stick-discipline 2	
fabric-soften 1	

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fabric-soften 2	1
nametape 1	1
nametape 2	
eyeread 1	1
eyeread 2	
charm-snare 1	
charm-snare 2	1
fire-eat 1	1
fire-eat 2	
side order 1	1
side order 2	
massarrive 1	
massarrive 2	1
coldvisit 1	1
coldvisit 2	
sticker-price 1	1
sticker-price 2	
headpeck 1	1
headpeck 2	
The following table displays the results of the acceptability task:

	Questionnaire #										
	1	2	3	4	5	6	7	8	9		
speed-date	2	2	2		2	1	2	2			
question-fire_sentence	2	-2	-2	-2	-2	1	-2	-2	-2		
table-eat	1	-2	-2	-1	-2	-2	-2	-2	-2		
cardpay_sentence	1	-2	-1	-1	1	-2	2	-2	-1		
colourtaste	-2	-2	-2	-2	-2	-1	-2	-2	1		
spongeclean_sentence	1	2	-1	-1	1	1	2	-2	-2		
stamp-collect	2	1	1	2	2	2	2	2	-2		
timecut_sentence	1	-1	-2	1	-2	1	-1	-2	2		
cherry-pick	2	2	-1	2	2	2	2	2			
potato peel_sentence	1	1	-2	-1	1	-1	2	-2	-1		
hand-signal	2	-1	1	2	2	2	2	-2	2		
hand-stamp_sentence	1	1	2	2	-1	-1	2	-2	2		
airtest	2	1	-1	-1	1	1	-1	-2	-2		
face-save_sentence	1	-1	1	-2	-2	-1	2	-2	-2		
stone-wash	2	1	2	1	2	1	2	2	-2		
floorsit_sentence	2	-2	-2	-1	-2	-2	-2	-2	-2		
knife-open	1	-1	-2	-2	-1	-1	-1	-2	-2		
friendpile_sentence		-2	-2	-1	-2	-1	-2	-2	-2		
crutchwalk		-2	-2	-1	-1	-2	-2	-2	-2		

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handwash_sentence	2	2	2	2	2	2	2	2	2
window-clean	1	l	1	2	2	2	2	-2	-2
schoolhop_sentence	-1	l -	-2	-1	1	-2	-1	1	-2
food-poison	-2	2	1	2	2	-1	2	-2	
purpose-build_sentence	2	2	2	2	2	1	2	2	2
trust-gamble	-2	2 -	-1	-2	-2	-2	-2	-2	-2
stickwalk_sentence	-2	2 -	-2	-2	-2	-1	-2	-2	-2
pillsleep	-2	2 -	-2	-2	-2	-2	-2	-2	-2
air-freshen-sentence		1	1	1	2	1	2	2	-2
palm-read	2	2	2	2	2	2	2	2	1
shotgun-marry_sentence	-2	2 -	-1	-1	2	1	-2	1	-1
homespin	-1	1 -	-1	-2	-2	-1	-2	-2	-1
hand-eat_sentence	-2	2 -	-2	-1	-2	-1	-2	-2	-2
garden-party	-2	2 -	-2	1	2	1	-2	-2	-2
weed-sow_sentence	-2	2 -	-2	-2	1	-2	-2	-2	-2
coldeat	-2	2 -	-2	-2	-1	-2	-2	-2	-2
mashfeed_sentence	-2	2 -	-2	-2	-1	-1	-1	-2	-2
fingercomb		1	2	1	-1	2	-1	-2	1
colourcook_sentence		1	1	-2	-1	1	-2	-2	-2
curtain-raise	-1	1 -	-2	1	2	1	-2	-2	-2
couchsleep_sentence	-1	1 -	-1	-2	-1	1	-2	-2	-2
earshoot	-2	2 -	-2	-2	-1	-1	-2	-2	-2
comfort-eat_sentence		1	2	2	2	2	2	2	-2

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windowcheck	-1	-2	-1	1	1	1	-2	-2
guestwork_sentence	-2	1	-2	2	-2	-2	-2	-1
airstroll	-2	-2	-2	-2	-2	-2	-2	-2
mudbathe_sentence	-1	1	1	2	1	-1	-2	1
foot-drag	-2	-2	-1	-2	-1	2	-2	-2
watertest_sentence	1	1	-1	2	1	2	-2	-2
figure-skate_sentence	1	1	1	2	-1	2	2	1

	Questionnaire #									
	10	11	12	13	14	15	16	17	18	
speed-date	2	2	2	2	2	2	2	2	2	
question-fire_sentence	1	-2	-2	-2	-1	-1	-2	-1	-2	
table-eat	-1	-2	-2	-2	-2	-1	-2	-2	-2	
cardpay_sentence	1	-1	-2	-2	-2	-1	-2	-2	-2	
colourtaste	-2	-2	-2	-1	-2	2	-2	-2	-2	
spongeclean_sentence	2	1	1	-1	-1	2	-2	-2	2	
stamp-collect	2	2	2	2	-1	2	-1	1	-2	
timecut_sentence	1	1	-2	-2	-1	-1	-2	-2	-2	
cherry-pick	2	2	2	2	-2	2	2	2	2	
potato peel_sentence	-1	2	-1	-1		1	-2	1	-2	
hand-signal	2	2	2	2	1	2	2	2	2	
hand-stamp_sentence	2	2	2	2	2	2	2	1	2	
airtest	-1	-1	2	1	-1	1	-1	-2	1	
face-save_sentence	-1	-2	-2	-2	-1	-2	-2	-2	-2	
stone-wash	2	2	2	2	1	2	2	2	1	
floorsit_sentence	-1	-1	-2	-2	-2	-2	-2	-2	-2	
knife-open	-1	1	-1	-2	-2	1	-2	-2	-2	
friendpile_sentence	1	-1	2	-2	-2	-1	-2	-2	-2	
crutchwalk	1	-1	-2	-2	-2	-2	-2	-2	-2	
handwash_sentence	2	2	1	2	2	2	2	2	2	
window-clean	2	2	2	2	1	2	1	-1	-2	

schoolhop_sentence	1	-2	2	-2	1	2	-2	-2	-2
food-poison	2	1	1	-1	-1	-1	-2	-2	-2
purpose-build_sentence	2	2	2	2	2	2	1	2	2
trust-gamble	-2	-1	-2	-2	-2	-2	-2	-2	-2
stickwalk_sentence	1	-1	-2	-2	-2	-2	-2	-2	-2
pillsleep	-1	-2	-1	-2	-2	-2	-2	-2	-2
air-freshen-sentence	2	1	2	-1	-1	2	-1	2	-2
palm-read	2	2	2	2	2	2	2	1	2
shotgun-marry_sentence	2	-1	1	-1	-1	-2	-2	1	-2
homespin	-2	1		-2	-1	2	-2	-2	-2
hand-eat_sentence	-2	-1	-2	-2	-1	-1	-2	-2	-2
garden-party	1	1	1	1	1	-1	-2	-2	-2
weed-sow_sentence	-1	-2	-1	-2	-2	-1	-2	-2	-2
coldeat	-2	-2	-2	-2	-2	-2	-2	-2	-2
mashfeed_sentence	1	-1	-2	-2	-1	-1	-2	-1	-2
fingercomb	2	2	2	1	-2	2	-2	-2	2
colourcook_sentence	1	1	1	-2	1	1	-2	-2	-2
curtain-raise	1	2	2	1	1		-2	-1	-2
couchsleep_sentence	1	-1	1	-2	-2	-2	-2	-2	-2
earshoot	-2	-2	-2	-2			-2	-2	-2
comfort-eat_sentence	2	2	2	2	1	2	-1	1	1
windowcheck	-2	-1	-2	-2	-1	-2	-2	-2	-2
guestwork_sentence	1	2	1	-1	-1	-1	-2	-2	-2

airstroll	-2	-2	-2	-2	-2		-2	-2	-2
mudbathe_sentence	2	-1	2	-1	2	2	-2	1	-2
foot-drag	1	1	1	-2	1	2	1	-2	-2
watertest_sentence	2	-1	2	2	2	2	1	-1	1
figure-skate_sentence	2	2	2	2	2	2	2	1	2

	Questionnaire #									
	19	20	21	22	23	24	25	26	27	
speed-date	1	2	2	2	1	2	2	2	2	
question-fire_sentence	-2	-1	1	1		-2	1	-2	-2	
table-eat	-2	-1	-2	1	-1	-2	-1	-1	-2	
cardpay_sentence	-2	-2	-1	2	-2	-1	1	-1	-2	
colourtaste	-2	1	-1	-1	-2	-2	-2	-1	-2	
spongeclean_sentence	1	2	2	2	-2	1	1	2	2	
stamp-collect	-1	-1	2	1	2	2	2	2		
timecut_sentence	-2		-1	-1	-2	-2	1	1	-2	
cherry-pick	2	2	2	2	2	2	2	2	2	
potato peel_sentence	-1	-1	1	-1	-1	1	1	-1	-2	
hand-signal	1		2	2	2	2	2	2	2	
hand-stamp_sentence	2	2	2	2	2	2	2	2	2	
airtest	2	-1	-1	2	-2	1	-1	2	1	
face-save_sentence	-2	1	-1	1	-1	1	-1	-2	-2	
stone-wash	1	2	-1	2	2	1	2	2	2	
floorsit_sentence	-1	-2	-1	1	-1	-1	-1	1	-2	
knife-open	-2	-1	2	1	-2	-1	-1	1	-2	
friendpile_sentence	-2	-2	-1	1	1	-2	-1	-1	-2	
crutchwalk	-2	-2	-1	-1	-1	-1	-1	1	-2	
handwash_sentence	2	2	2	2	2	2	2	2	2	

window-clean	1	2	1	1	2	2	2	2	1
schoolhop_sentence	-2	-1	-2	2	1	-1	-2	2	-2
food-poison	-1	2	2	1	1	2	-1	2	2
purpose-build_sentence	1	-1	-2	-1	-1	1	1	1	-2
trust-gamble	-2	-1	-1	1	-2	-2	-1	-1	-2
stickwalk_sentence	-1	-2	-2	1	1	-2	-1	-2	-2
pillsleep	-2	-2	-2	1	1	-2	-2	-1	-2
air-freshen-sentence	1	1	2	1	2	1	1	-1	2
palm-read	1	2	2	2	2	2	2	2	1
shotgun-marry_sentence	1	2	2	2	2	-1	1	1	-1
homespin	1	-2	1	2	1	1	2	1	-1
hand-eat_sentence	-2	-2	1	1	-1	-1	1	2	-2
garden-party	-1	2	1	1	-1		1	-1	-1
weed-sow_sentence	-1	-2	-2	-1	-1	-1	-1	-1	-2
coldeat	-2	-2	-2	1	-2	-2	-2	-1	-2
mashfeed_sentence	-2	-1	-2	1	-2	-1	2	-1	-2
fingercomb	-1	1	2	2	2	2	2	2	2
colourcook_sentence	-2	-2	-2	2	-1	-2	1	-2	-2
curtain-raise	-1	1	-1	1	-1	1	-1	-1	-1
couchsleep_sentence	-2	1	-1	1	-1	1	-1	1	-2
earshoot	-2	-2	-1	-1	-1	-2	-2	-1	-2
comfort-eat_sentence	1	2	2	1	-1	1	1	2	1

windowcheck	-2	-1	-1	1	-1	1	-1	1	-2
guestwork_sentence	1	1	-2	1	1	-2	-2	-1	-2
airstroll	-2	-2	-1	1	-2	-2	-2	-1	-2
mudbathe_sentence	1	1	2	1	2	2	2	1	1
foot-drag	-1	1	-1	1	2	1	-2	-1	-1
watertest_sentence	2	-2	2	2	1	-1	2		2
figure-skate_sentence	2	2	2	2	2	-1	2	1	2

	Questionnaire #								
	28	29	30	31	32	33	34	35	
speed-date	1	2	-2	2	2	2	2		
question-fire_sentence	-1	-2	-2	-2	-2	2	-2		
table-eat	-1	-2	-2	-1	-2	-2	-2		
cardpay_sentence	-1	-2	-2	-1	-2		-2		
colourtaste	-1	-2	-1	-2	-2	-2	-2		
spongeclean_sentence	-1	1	1	1	1	-1	-1		
stamp-collect	-1	-2		1	2	2	1		
timecut_sentence	-1	-2	-2	-2	-2	-1	-2		
cherry-pick	2	2	1	2	2	2	1		
potato peel_sentence	-1	-2	-1	1	1	-2	-2		
hand-signal	1	-2	-1	2	2	2	1		
hand-stamp_sentence	1	2	1	2	2	2	1		
airtest	-1	-1	-2	-2	-2	2	-2		
face-save_sentence	-1	-2	-2	-1	-2	-1	-2		
stone-wash	2	1	2	2	2	2	-2		
floorsit_sentence	-2	-2	-2	-1	-2	-2	-2		
knife-open	-2	-2	-2	1	1	-1	-2		
friendpile_sentence	-2	-2	-2	-2	-2	-2	-2		
crutchwalk	-1	-1	-2	-2	-2	-2	-2		
handwash_sentence	1	2	2	2	2	2	1		
window-clean	1	-2	-1	2	2	2	-2		

schoolhop_sentence	-2	-1	-2	-2	1	1	-2
food-poison	-1	-2	1	2	2	1	1
purpose-build_sentence	1	-2	-2	-2	-2	1	-2
trust-gamble	-1	-2	-2	-2	-2	-2	-2
stickwalk_sentence	-1	-2	-2	-2	1	-2	-2
pillsleep	-1	-2	-2	-2	-2	-2	-2
air-freshen-sentence	1	-1	-1	2	2	-2	-2
palm-read	2	2	2	2	2	2	-2
shotgun-marry_sentence	-1	-1	-2	1	2	2	-2
homespin	1	-2	-1	-2	2	-2	-2
hand-eat_sentence	-1	-1	-2	1	-2	-2	-2
garden-party	-1	-1	1	-1	1	1	-2
weed-sow_sentence	-1	-2	-2	-2	-2	-2	-2
coldeat	-2	-2	-2	-1	-2	-2	-2
mashfeed_sentence	-1	-2	-2	-1	-2	-2	-2
fingercomb	1	-1	-1	2	2	2	-2
colourcook_sentence	1	-1	-2	1	-2	-1	-2
curtain-raise	-1	-2	-2	2	1	-1	-2
couchsleep_sentence	1	-2	-2	1	1	-2	-2
earshoot	-1	-2	-2	-1	-1	-2	-2
comfort-eat_sentence	-1	-2	-1	2	-2	-2	-2
windowcheck	-1	-2	-2	2	-2	-2	-2
guestwork_sentence	-1	-2	-2	-1	-2	-2	-2

airstroll	-1	-2	-2	-2	-2	-2	-2	
mudbathe_sentence	1	2	-2	2	2	1	-2	
foot-drag	-1	2	-1	2	2	1	-2	
watertest_sentence	-1	2	-1	2	1	2	-2	
figure-skate_sentence	1	-1	2	1	2	2	-2	

# 2.2 Questionnaire 2

	Questionnaire #											
	1	2	3	4	5	6	7	8	9	10	11	
speed-date 1	1	1	1	1	1	1	1	1	1		1	
speed-date 2												
table-eat 1	1		1	1	1	1	1					
table-eat 2												
colourtaste 1	1		1	1	1	1						
colourtaste 2												
stamp-collect 1												
stamp-collect 2	1	1	1	1	1	1	1	1	1	1	1	
cherry-pick 1	1	1	1	1	1	1	1	1	1	1	1	
cherry-pick 2												
hand-signal 1	1		1		1	1	1	1		1	1	
hand-signal 2			1				1					
airtest 1					1	1						
airtest 2	1					1			1	1	1	
stone-wash 1	1	1	1	1	1	1	1	1	1	1	1	
stone-wash 2			1									
knife-open 1	1		1	1	1	1	1	1		1		
knife-open 2												
crutchwalk 1	1				1							
crutchwalk 2			1	1		1	1	1				
window-clean 1												
window-clean 2	1	1	1	1	1	1		1	1	1	1	
food-poison 1	1											
food-poison 2		1	1	1	1	1	1	1			1	
trust-gamble 1				1								
trust-gamble 2	1		1		1	1		1		1		
pillsleep 1					1							
pillsleep 2	1		1	1		1					1	
palm-read 1	1	1	1	1	1	1	1	1	1	1	1	
palm-read 2												

homespin 1	1			1	1	1				1	
homespin 2								1	1		1
garden-party 1	1		1	1	1	1	1	1		1	
garden-party 2									1		
coldeat 1			1	1							1
coldeat 2	1				1						
fingercomb 1			1	1	1	1	1		1	1	1
fingercomb 2	1	1						1			
curtain-raise 1	1		1	1	1	1	1		1	1	1
curtain-raise 2											
earshoot 1	1		1	1	1	1					
earshoot 2											
windowcheck 1											
windowcheck 2	1		1	1	1	1					1
airstroll 1	1		1	1							
airstroll 2				1	1	1					
foot-drag 1	1	1	1	1	1	1	1	1	1	1	1
foot-drag 2		1									

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		Questionnaire #									
	12	13	14	15	16	17	18	19	20	21	22
speed-date 1	1	1	1	1	1	1	1	1	1	1	1
speed-date 2											
table-eat 1	1		1		1		1	1	1	1	1
table-eat 2											
colourtaste 1	1		1					1	1	1	
colourtaste 2			1		1		1				
stamp-collect 1											
stamp-collect 2	1	1	1	1	1	1	1	1	1	1	1
cherry-pick 1	1	1	1	1	1		1	1	1	1	1
cherry-pick 2						1					
hand-signal 1	1	1	1	1	1	1	1	1	1		1
hand-signal 2			1			1					
airtest 1			1					1			
airtest 2	1		1		1	1	1		1		1
stone-wash 1	1	1	1	1	1	1	1	1	1	1	1
stone-wash 2											
knife-open 1	1	1			1	1	1	1	1	1	1
knife-open 2			1								
crutchwalk 1			1			1	1		1		
crutchwalk 2			1	1	1			1		1	1
window-clean 1			1			1					
window-clean 2		1		1		1	1		1	1	1
food-poison 1					1	1		1			
food-poison 2	1	1	1				1		1	1	1
trust-gamble 1			1		1	1				1	
trust-gamble 2	1							1	1		1
pillsleep 1			1						1		1
pillsleep 2	1				1		1	1		1	
palm-read 1	1	1	1	1	1	1	1	1	1	1	1
palm-read 2											
homespin 1			1	1	1				1	1	

homespin 2						1		1			1
garden-party 1	1	1	1		1	1	1			1	1
garden-party 2			1						1		
coldeat 1					1	1				1	1
coldeat 2			1					1	1		
fingercomb 1		1	1		1	1	1	1	1	1	1
fingercomb 2	1						1				
curtain-raise 1		1		1	1	1		1	1	1	
curtain-raise 2			1								
earshoot 1			1		1	1		1		1	
earshoot 2								1			
windowcheck 1									1		
windowcheck 2	1		1		1			1		1	
airstroll 1			1						1	1	
airstroll 2	1				1			1		1	1
foot-drag 1			1	1	1	1		1	1	1	1
foot-drag 2											

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	Questionnaire #										
	23	24	25	26	27	28	29	30	31	32	33
speed-date 1	1	1			1		1	1	1	1	1
speed-date 2				1							
table-eat 1		1	1	1		1	1	1			
table-eat 2	1								1		
colourtaste 1				1							
colourtaste 2	1							1			
stamp-collect 1											
stamp-collect 2	1	1	1	1	1	1	1	1	1	1	
cherry-pick 1	1	1	1	1	1	1	1	1	1	1	1
cherry-pick 2	1							1			
hand-signal 1	1	1	1	1	1	1	1	1	1	1	1
hand-signal 2	1		1								
airtest 1		1	1			1	1				
airtest 2	1		1					1	1		
stone-wash 1	1	1	1	1	1	1	1	1	1	1	1
stone-wash 2											
knife-open 1	1	1		1	1		1	1	1		1
knife-open 2											
crutchwalk 1	1	1					1	1			
crutchwalk 2						1			1		
window-clean 1											
window-clean 2	1	1	1	1	1		1	1	1		
food-poison 1	1	1		1					1		
food-poison 2			1			1	1				
trust-gamble 1											
trust-gamble 2		1				1	1		1		
pillsleep 1	1										
pillsleep 2		1					1	1	1		
palm-read 1	1	1	1	1		1	1	1	1	1	1
palm-read 2									1		
homespin 1	1	1				1		1	1		

homespin 2							1	1			
garden-party 1	1	1	1	1			1	1	1		
garden-party 2											
coldeat 1		1		1			1		1		
coldeat 2	1										
fingercomb 1	1	1		1	1	1		1	1	1	1
fingercomb 2			1				1				
curtain-raise 1	1	1	1	1		1	1	1	1		
curtain-raise 2	1										
earshoot 1		1									
earshoot 2	1										
windowcheck 1		1									
windowcheck 2	1			1			1	1			
airstroll 1			1								
airstroll 2	1			1			1				
foot-drag 1	1	1	1	1		1	1	1	1	1	1
foot-drag 2											

	Questionnaire #
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speed-date 1	1
speed-date 2	
table-eat 1	1
table-eat 2	
colourtaste 1	
colourtaste 2	
stamp-collect 1	
stamp-collect 2	1
cherry-pick 1	1
cherry-pick 2	
hand-signal 1	1
hand-signal 2	
airtest 1	1
airtest 2	1
stone-wash 1	1
stone-wash 2	
knife-open 1	1
knife-open 2	
crutchwalk 1	
crutchwalk 2	
window-clean 1	
window-clean 2	1
food-poison 1	1
food-poison 2	
trust-gamble 1	
trust-gamble 2	
pillsleep 1	
pillsleep 2	
palm-read 1	1
palm-read 2	
homespin 1	

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homespin 2	1
garden-party 1	1
garden-party 2	
coldeat 1	
coldeat 2	
fingercomb 1	1
fingercomb 2	1
curtain-raise 1	
curtain-raise 2	
earshoot 1	
earshoot 2	
windowcheck 1	
windowcheck 2	
airstroll 1	
airstroll 2	
foot-drag 1	
foot-drag 2	

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	Questionnaire #											
	1	2	3	4	5	6	7	8	9			
question-fire	1	-1	-1	1		-1	-1	-2	-2			
beauty-sleep_sentence	2	1	-1	1		1	1	1	1			
cardpay	1	-1	-2	-2		-1	-1	1	-2			
sun-bathe_sentence	2	2	2	2		2	2	2	2			
spongeclean	1	1	1	-1		1	-1	-1	1			
rumour-spread_sentence	-1	1	-2	-1		-2	-1	-2	-2			
timecut	-1	1	-2	-1		1	-2	-2	-2			
househop_sentence	1	-1	-2	-1		2	1	1	1			
potato peel	1	2	2	-1		2	1	-1	-2			
laser point_sentence	-1	-1	2	-1		1	-1	1	2			
hand-stamp	1	1	2	2		2	2	2	2			
flypick_sentence	1	1	-2	-1		-2	1	-2	-2			
face-save	2	2	2			1	2	-2	1			
shame-lie_sentence	-1	1	-2	-1		-2	-2	-2	-2			
floorsit	1	-1	-1	-1		-1	1	-2	-2			
hand-kiss_sentence	2	-1	2	2		1	-1	2	-1			
friendpile	-1	-1	-1	-1		-1	-2	-2	-2			
handstand_sentence	2	-1	2	2		2	1	1	1			
handwash	2	2	2	1			2	2	2			
headplunge_sentence	1	-1	-2	-1		2	-2	-2	1			
schoolhop	-1	1	1	-1		2	-2	-1	1			

fear-bleed_sentence	-1	-2	2	-1	1	-2	-2	-2
purpose-build	2	2	2	-1	2	1	2	2
bellykick_sentence	2	1	2	1	-1	1	-1	1
stickwalk	-1	1	-2	1	-1	-1	-2	-2
lion-tame_sentence	2	1	2	1	-1	2	1	1
air-freshen	2	1	2	2	1	2	2	1
clod-hop_sentence	2	1	1	1		1	1	2
shotgun-marry	2	1	1	1	2	-2	-2	1
stick-discipline_sentence	1	-1	2	1	2	-1	-2	1
hand-eat	2	1	-1	1	2	-1	-2	1
fabric-soften_sentence	2	1	2	1	1	1	-1	1
weed-sow	-1	-1	2		1	-2	-2	-2
nametape_sentence	1	1	2	1	-1	1	-2	2
mashfeed	1	-1	-1	-1	-1	-2	-2	-1
eyeread_sentence	-1	-1	-2	-1	-1	-2	-2	-1
colourcook	1	-1	-2	-1	2	-2	-2	-2
charm-snare_sentence	1	-1	-2	-1	-1	-2	-1	-1
couchsleep	1	1	1	-1	-1	-1	-2	-1
fire-eat-sentence	2	-1	2	-2	-2	2	2	1
comfort-eat	1	2	2	1	2	-1	2	2
side orde_sentence	2	-1	2	1	2	2	-2	1
guestwork	-2	-1	-1	-2	-1	-2	-2	-2
massarrive_sentence	1	1	-2	-1	-1	-2	-2	-2

mudbathe	2	2	2	1	2	1	2	-1
coldvisit_sentence	2	-1	2	1	1	-1	-2	-1
watertest	1	1	-2	-1		-2	-1	2
sticker-price_sentence	1	1	1	1		1	-2	1
figure-skate	2	2	2	1	2	-1	2	2
headpeck_sentence	-2	1	1	-1	-2	1	-1	1

	Questionnaire #									
	10	11	12	13	14	15	16	17	18	
question-fire	-2	-2	-1	-1	2	-2	1	1	-2	
beauty-sleep_sentence	-2	-1	-1	1	-1	1	2	-1		
cardpay	-2	-1	1	-2	2	-2	1	1	-2	
sun-bathe_sentence	2	2	2	2	-2	2	2	2	2	
spongeclean	2	2	1	-1	1	1	1	2	2	
rumour-spread_sentence	-2	-2	-1	-2	-2	-2	-1	1	2	
timecut	-2	-2	-2	-2	2	-2	-1	-1	2	
househop_sentence	-2	2	1	1	1	-1	1	-1	2	
potato peel	-2	-2	-2	-2	-1	1	-2	-2	-2	
laser point_sentence	-2	-2	-1	-1	1	2	-1	-1	2	
hand-stamp	-1	2	-1	2	1	1	2	-1	2	
flypick_sentence	-2	1	-1	-1	-1	-2	-2	-1	-2	
face-save	-2	-1	-2	-2	1	-1	-1	-2	-2	
shame-lie_sentence	-2	-2	-2	-2	-2	-2	-2	-2	-2	
floorsit	-2	-2	-2	-1	2	-2	-1	2	-2	
hand-kiss_sentence	-2	-1	2	1	1	-2	-2	-1	-2	
friendpile	-2	-2	-2	-2	1	-2	-2		-2	
handstand_sentence	-2	1	-1	1	2	1	1	-1	2	
handwash	2	1	2	2	2	1	2	2	2	
headplunge_sentence	-2	-1	1	-1	2	-2	-1	-1	-2	
schoolhop	-2	-1	1	-1	-1	-1	1	-1	-2	

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fear-bleed_sentence	-2	-2	-2	-1	-2	-2	-1	-2	-2
purpose-build	2	2	-2	-1	-2	-2	1	-2	-2
bellykick_sentence	-2	1	1	-2	-2	1	-1	-1	-2
stickwalk	-2	-2	-1	-2	2	-1	-2	-1	-1
lion-tame_sentence	1	1	-1	1	-1	2	-1	1	2
air-freshen	-1	1	1	1	2	-1	1	2	2
clod-hop_sentence	-2	1	1	-1	1	1	2	1	1
shotgun-marry	-2	-2	-2	-2	1	1	2	1	2
stick-discipline_sentence	-2	-2	-2	-1	-1	-2	1	-1	2
hand-eat	-2	-2	-1	-1	1	-2	-1	-1	-2
fabric-soften_sentence	-1	1	-2	-1	2	1	1	2	1
weed-sow	-2	-2	-2	-2	-2	-2	-2	-1	-2
nametape_sentence	1	1	1	1	-2	1	-2	-2	2
mashfeed	-2	-2	-2	-1	-1	-1	-2	-1	-2
eyeread_sentence	-2	-2	-2	-1	1	-2	-2	-1	1
colourcook	-2	-2	-2	-2	1	-2	-2	-2	-2
charm-snare_sentence	-2	-2	-2	-1	2	-2	-2	-1	2
couchsleep	-2	-2	-2	-1	2	-2	1	1	2
fire-eat-sentence	-2	-1	-2	-1	-2	2	-1	-1	-2
comfort-eat	2	2	-1	-2	-2	-1	1	1	2
side orde_sentence	-2	1	1	2	-1	1	-1	2	2
guestwork	-2	-1	-1	-2	1	1	-2	1	2
massarrive_sentence	-2	-2	-2	-2	1	-1	-2	-1	-2

mudbathe	2	1	-1	1	2	2	2	1	2
coldvisit_sentence	-2	-2	-1	-2	2	-1	-2	-1	1
watertest	1	1	-1	-2	2	-1	-1	1	2
sticker-price_sentence	-1	1	-1	1	-2	1	2	1	2
figure-skate	2	2	-1	2	2	2	2	2	2
headpeck_sentence	-2	-2	-1	-2	2	-2	-2	-1	2

	Questionnaire #								
	19	20	21	22	23	24	25	26	27
question-fire	-2	-2	1	-1	-1		-2	1	-2
beauty-sleep_sentence	1	-2	1	2	2	1	2	1	-2
cardpay	2	-2	-2	1	1	-2	-2	2	-2
sun-bathe_sentence	2	2	2	2	2	2	2	1	2
spongeclean	-2	-2	-1	1	1	2	1	-1	-2
rumour-spread_sentence	-1	2	-1	-2	-1	-1	-2	-1	-2
timecut	1	-2	-1	-1	-1	-2	1	1	-2
househop_sentence	-1	1	-1	-1	2	1	1	-1	-2
potato peel	1	-2	-1	1	1	-1	-2	-1	-1
laser point_sentence	2	-2	-1	1	-1	-1	1	-2	-2
hand-stamp	-1	1	2	2	2	1	2	1	2
flypick_sentence	-2	-2	-1	-1	-2	-2	-2	-2	-2
face-save	-2	-2		2	-1	-1	-2	-1	-2
shame-lie_sentence	-2	-2	-1	-1	-2	-1	-2	-2	-2
floorsit	1	-2	-1	-1	-1	-2	-2	-1	-2
hand-kiss_sentence	-1	-2	2	1	1	1	1	-2	-2
friendpile	-1	-2	-1	-2	-2	-2	-2	-2	-2
handstand_sentence	1	2	2	1	2	2	2	1	1
handwash	1	2	1	2	2	1	2		2
headplunge_sentence	-1	-2	-1	-1	1	-1	-2	-2	-2
schoolhop	1	-1	-1	-1	2	-2	1	-1	-2

fear-bleed_sentence	-1	1	-1	-2	-1	1	-2	-2	-1
purpose-build	-1	1	-1	-2	-2	1	-2	-2	-2
bellykick_sentence	2	1	1	2	2	1	-2	-2	1
stickwalk	-1	-2	1	2	-1	-1	-2	1	-2
lion-tame_sentence	1	2	1	-1	1	1	2	2	1
air-freshen	-1	2	2	2	1	-1	2	1	-2
clod-hop_sentence	2	-1	1	1	1	2	-2	1	-2
shotgun-marry	-2	-1	1	1	-2	1	2	-2	-2
stick-discipline_sentence	-2	-2	1	-1	1	1	-2		-2
hand-eat	-2	-2	1	-1	-1	-1	1	-2	-2
fabric-soften_sentence	2	1	1	1	1	2	2	-1	1
weed-sow	-2	-2		-1	-1	-1	-2	-2	-2
nametape_sentence	1	-2	1	-2	-1	2	1	-1	-2
mashfeed	-2	-2	-1	-1	-2	-2	-2	-2	-2
eyeread_sentence	-2	-2	-1	-2	-1	1	-2	-2	-2
colourcook	-2	-2	-1	-2	-1	-2	-2	-2	-2
charm-snare_sentence	1	-2	-1	-2	-2	1	-2	-2	-2
couchsleep	-1	-2	-1	-2	-1	-1	-2	-1	-2
fire-eat-sentence	1	-2	-2	-2	-1	1	1	-1	-2
comfort-eat	1	-2	1	-2	-1	1	1	-1	-2
side orde_sentence	1	2	1	1	1	2	1	2	1
guestwork	-2	-2	-2	-1	-1	-2	1	-1	-2
massarrive_sentence	-2	-2	-1	-2	-2	1	1	-2	-2

mudbathe	2	1	1	2	2	1	2	-2	1
coldvisit_sentence	-2	-2	1	-1	-1	1	-2	-2	-2
watertest	-1	-2	-1	-1	2	1	2	-1	1
sticker-price_sentence	1	2	1	1	2	2	2	2	-2
figure-skate	2	2	1	2	2	2	2	2	2
headpeck_sentence	-2	-1	-1	-1	2	-1	-2	-2	-2

	Questionnaire #										
	28	29	30	31	32	33	34				
question-fire	-2	-2	-2	-2	-2	-2	-2				
beauty-sleep_sentence	-2	1	1	2	-1	1	1				
cardpay	-2	-2	-1	-2	-2	-2	-1				
sun-bathe_sentence	2	2	2	2	2	2	2				
spongeclean	1	1	1	1	1	2	2				
rumour-spread_sentence	-2	-2	-1	-1	-2	-2	-2				
timecut	-2	-2	-1	-2	-2	-2	-1				
househop_sentence	1	1	2	2	1	2	1				
potato peel	-2	-2	1	-2	-2	-2	-2				
laser point_sentence	-2	-1	-1	1	-1	1	1				
hand-stamp	2	1	1	2	2	2	1				
flypick_sentence	-2	-2	1	-2	-2	1	-2				
face-save	-2	-1	1	-1	2	-2	-2				
shame-lie_sentence	-2	-2	-2	-2	-2	-2	-2				
floorsit	-2	-1	1	-2	1	-2	-2				
hand-kiss_sentence	-2	-1	-1	1	-2	-2	-2				
friendpile	-2	-1	-1	-2	-2	-2	-2				
handstand_sentence	-1	1	1	2	1	2	-1				
handwash	2	1	2	2	2	2	2				
headplunge_sentence	-1	-2	2	-1	1	-1	-1				
schoolhop	-1	-1	2	-2	1	1	1				

fear-bleed_sentence	-2	-2	-2	-2	-2	-2	-2	
purpose-build	-2	-2	-2	-2	2	2	-2	
bellykick_sentence	-2	-1	2	-2	1	1	-2	
stickwalk	-2	-1	-1	-1	1	1	-2	
lion-tame_sentence	1	-1	1	1	1	1	1	
air-freshen	-2	-1	1	2	1	1	-2	
clod-hop_sentence	2	1	2	2	2	-2	2	
shotgun-marry	-2	-1	-1	1	1	-2	1	
stick-discipline_sentence	-2	-2	-1	1	-2	-2	-2	
hand-eat	-2	-2	-1	-2	-2	1	-1	
fabric-soften_sentence	1	-1	-1	2	2	1	1	
weed-sow	-2	-2	-1	-1	-2	-2	-2	
nametape_sentence	1	1	1	1	1	1	-2	
mashfeed	-2	-2	-1	-2	-2	-2	-2	
eyeread_sentence	-2	-2	-2	-1	-2	-2	-2	
colourcook	-2	-2	-2	-2	-2	-2	-2	
charm-snare_sentence	-2	-2	-2	-2	-2	-2	-2	
couchsleep	-2	-2	-2	1	-2	1	1	
fire-eat-sentence	-2	-1	-1	-2	1	1	-1	
comfort-eat	-1	-1	-1	-1	-1	1	1	
side orde_sentence	1	-2	-1	2	-2	2	-2	
guestwork	-2	-2	-1	-2	-2	1	-2	
massarrive_sentence	-2	-2	-1	-2	-2	1	-2	

mudbathe	-1		2	2	2	2	2	
coldvisit_sentence	-2	-1	-1	-2	-2	-2	-2	
watertest	-2	-1	1	-1	2	1	-1	
sticker-price_sentence	1	1	2	1	1	2	-2	
figure-skate	2	2	1	2	2	2	2	
headpeck_sentence	-2	-2	-1	-2	-2	-1	-2	

# 2.3 Questionnaire 3

	Questionnaire #										
	1	2	3	4	5	6	7	8	9	10	11
question-fire 1		1	1	1	1	1		1	1	1	
question-fire 2							1			1	
cardpay 1			1		1				1		
cardpay 2		1	1	1		1	1	1	1	1	1
spongeclean 1		1									
spongeclean 2	1		1	1	1	1	1	1	1	1	1
timecut 1		1		1	1						
timecut 2						1		1	1	1	
potato peel 1	1	1	1	1	1	1	1	1	1	1	
potato peel 2											
hand-stamp 1	1		1	1		1		1		1	
hand-stamp 2					1	1	1		1	1	1
face-save 1	1	1	1	1	1	1		1	1	1	
face-save 2							1				1
floorsit 1		1				1	1	1	1		
floorsit 2											
friendpile 1			1	1		1		1	1		1
friendpile 2		1									
handwash 1			1	1	1	1					
handwash 2	1	1		1		1	1	1	1	1	1
schoolhop 1											
schoolhop 2	1	1	1	1		1	1	1	1	1	1
purpose-build 1	1	1	1	1	1	1	1	1	1	1	1
purpose-build 2											
stickwalk 1	1					1			1		1
stickwalk 2		1						1			
air-freshen 1	1				1			1			
air-freshen 2	1	1		1		1	1		1	1	1
shotgun-marry 1								1			
shotgun-marry 2	1	1	1	1	1	1	1		1	1	1

hand-eat 1	1	1	1	1	1	1		1	1		1
hand-eat 2											
weed-sow 1											
weed-sow 2		1				1		1			
mashfeed 1			1					1			
mashfeed 2	1	1		1		1					1
colourcook 1		1									1
colourcook 2	1			1			1	1	1		
couchsleep 1		1		1				1			
couchsleep 2	1			1	1	1	1		1		1
comfort-eat 1			1	1							
comfort-eat 2	1	1		1	1	1	1	1	1	1	1
guestwork 1		1		1		1	1				1
guestwork 2			1					1	1		
mudbathe 1											
mudbathe 2	1	1	1	1	1	1	1	1	1	1	1
watertest 1	1	1	1	1		1	1	1	1	1	
watertest 2				1	1			1		1	1
figure-skate 1	1	1	1	1		1	1	1	1	1	1
figure-skate 2			1		1			1			

					Ques	tionn	aire #	:			
	12	13	14	15	16	17	18	19	20	21	22
question-fire 1	1	1	1		1	1	1		1	1	1
question-fire 2											
cardpay 1					1						
cardpay 2	1	1	1			1	1		1	1	1
spongeclean 1				1							
spongeclean 2	1	1	1	1	1	1	1	1	1	1	1
timecut 1	1	1							1	1	
timecut 2				1	1		1				1
potato peel 1		1	1				1	1	1	1	1
potato peel 2	1			1	1						
hand-stamp 1	1		1				1		1	1	1
hand-stamp 2		1		1	1		1	1	1		
face-save 1	1	1	1	1	1	1			1	1	1
face-save 2											
floorsit 1		1			1		1			1	1
floorsit 2	1										
friendpile 1					1	1	1		1	1	1
friendpile 2	1						1				
handwash 1	1			1	1				1		1
handwash 2		1	1	1	1	1	1	1	1	1	
schoolhop 1	1										
schoolhop 2		1	1	1	1	1	1	1	1	1	1
purpose-build 1	1	1	1	1	1	1	1	1	1	1	1
purpose-build 2											
stickwalk 1	1	1									
stickwalk 2			1		1				1	1	1
air-freshen 1	1	1					1		1	1	
air-freshen 2		1	1	1	1	1	1	1	1		1
shotgun-marry 1											
shotgun-marry 2	1	1	1	1	1	1	1	1	1	1	1
hand-eat 1	1	1	1		1	1	1		1	1	1

hand-eat 2									1		
weed-sow 1	1	1	1				1			1	
weed-sow 2											
mashfeed 1	1		1	1						1	
mashfeed 2				1	1		1				1
colourcook 1	1	1			1				1		1
colourcook 2		1	1						1	1	
couchsleep 1	1	1		1			1		1	1	
couchsleep 2		1	1		1				1		1
comfort-eat 1									1		
comfort-eat 2	1	1	1	1	1	1			1	1	1
guestwork 1	1	1	1	1	1	1		1	1		1
guestwork 2		1							1	1	
mudbathe 1											1
mudbathe 2	1	1	1	1	1	1	1		1	1	
watertest 1	1	1	1						1	1	1
watertest 2				1	1		1				
figure-skate 1	1	1	1		1	1		1	1	1	1
figure-skate 2				1			1		1		
					Ques	tionn	aire #				
-----------------	----	----	----	----	------	-------	--------	----	----	----	----
	23	24	25	26	27	28	29	30	31	32	33
question-fire 1	1	1	1		1	1	1	1	1	1	1
question-fire 2											
cardpay 1									1		
cardpay 2	1	1	1	1	1	1	1	1	1	1	1
spongeclean 1											
spongeclean 2	1	1	1	1	1	1	1	1	1	1	1
timecut 1	1					1					
timecut 2					1				1	1	1
potato peel 1	1	1	1	1	1	1	1	1	1	1	1
potato peel 2											
hand-stamp 1		1		1	1		1		1	1	1
hand-stamp 2	1	1	1		1	1	1	1	1		1
face-save 1	1		1	1	1	1	1	1	1	1	1
face-save 2											
floorsit 1	1		1	1	1	1	1	1	1		1
floorsit 2										1	
friendpile 1	1	1	1	1	1	1	1	1		1	1
friendpile 2	1								1		1
handwash 1		1			1		1		1		
handwash 2	1	1	1	1	1	1	1	1	1	1	1
schoolhop 1											
schoolhop 2	1	1	1	1	1	1		1	1	1	1
purpose-build 1	1		1	1	1	1			1	1	1
purpose-build 2	1	1					1				
stickwalk 1										1	
stickwalk 2	1			1	1	1	1		1		
air-freshen 1			1		1				1	1	
air-freshen 2	1	1	1	1	1	1	1	1	1		1
shotgun-marry 1					1		1	1	1		
shotgun-marry 2	1	1	1	1	1	1	1		1	1	1
hand-eat 1	1	1	1	1	1	1	1	1	1	1	

hand-eat 2	1				1				1		1
weed-sow 1				1	1		1				1
weed-sow 2	1					1			1	1	
mashfeed 1	1					1					1
mashfeed 2		1		1	1	1				1	
colourcook 1	1	1	1	1	1	1					
colourcook 2						1		1		1	
couchsleep 1	1	1							1		1
couchsleep 2	1	1	1	1	1	1	1	1	1	1	
comfort-eat 1	1					1					
comfort-eat 2	1		1	1	1		1	1	1	1	1
guestwork 1	1		1			1	1				1
guestwork 2	1			1	1					1	
mudbathe 1											
mudbathe 2	1	1	1	1	1	1	1	1	1	1	1
watertest 1			1		1	1	1			1	1
watertest 2	1	1		1	1	1	1	1	1		
figure-skate 1	1	1		1	1	1	1	1	1	1	1
figure-skate 2	1		1			1					

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					Ques	tionna	iire #
	34	35	36	37	38	39	
question-fire 1	1	1	1	1	1	1	
question-fire 2							
cardpay 1		1				1	
cardpay 2		1		1	1		
spongeclean 1							
spongeclean 2		1	1	1	1	1	
timecut 1	1					1	
timecut 2		1			1		
potato peel 1	1			1	1	1	
potato peel 2		1					
hand-stamp 1	1	1					
hand-stamp 2		1	1	1	1	1	
face-save 1	1	1		1	1	1	
face-save 2							
floorsit 1		1			1	1	
floorsit 2							
friendpile 1	1	1	1	1	1	1	
friendpile 2							
handwash 1	1						
handwash 2		1	1	1	1	1	
schoolhop 1	1						
schoolhop 2		1	1	1	1	1	
purpose-build 1			1	1		1	
purpose-build 2	1	1					
stickwalk 1							
stickwalk 2	1			1	1	1	
air-freshen 1		1				1	
air-freshen 2	1	1	1	1	1		
shotgun-marry 1		1		1	1		
shotgun-marry 2	1	1				1	
hand-eat 1	1			1	1	1	

hand-eat 2		1					
weed-sow 1		1					
weed-sow 2				1	1	1	
mashfeed 1	1	1	1	1		1	
mashfeed 2					1		
colourcook 1		1					
colourcook 2	1	1			1	1	
couchsleep 1	1	1				1	
couchsleep 2				1	1		
comfort-eat 1							
comfort-eat 2	1	1		1	1	1	
guestwork 1	1	1	1	1		1	
guestwork 2		1			1		
mudbathe 1		1					
mudbathe 2	1	1		1	1	1	
watertest 1				1	1	1	
watertest 2		1	1				
figure-skate 1		1	1		1		
figure-skate 2	1	1		1		1	

	Questionnaire #									
	1	2	3	4	5	6	7	8	9	
beauty-sleep	2	2	2	2	1	1	-1	1	1	
speed-date_sentence	1	2	1	1	2	2	1	1	2	
sun-bathe	2	2	1	2	2	2	1	1	2	
table-eat_sentence	-1	-2	-2	-2	-1	-1	-2	-1	-1	
rumour-spread	-1	-1	1	-2	1	-1	-1	-2	1	
colourtaste_sentence	2	-2	-1	-2	-1	1	2	-1	-1	
househop	1	1	-1		-1	1	-1		-2	
stamp-collect_sentence	2	1	2	1	1	2	1	-2	-1	
laser point	1	-1	1	-1	1	1	-1		-1	
cherry-pick_sentence	1	2	2	2	2	2	2	1	2	
flypick	1	1	-2	2	-1	-2	-1		-1	
hand-signal_sentence	2	2	2	1	2	1	2	1	2	
shame-lie	-1	-1	-2	-2	-1	-2	-2	-2	-1	
airtest_sentence	2	1	1	1	-2	1	-1	1	2	
hand-kiss	2	2	-1	-2	1	1	-1	-2	-1	
stone-wash_sentence	2	2	2	1	2	2	2	2	-1	
handstand	2	2	1	2		1	1	2	1	
knife-open_sentence	2	-2	-2	-2	1	-1	1	-2	-1	
headplunge	2	2	-1	-2	-1	-1	-1	-1	-1	
crutchwalk_sentence	1	-2	-2	-2	-1	-1	-2	-2	-1	
fear-bleed	-1	-2	-2	-2	-1	-2	-2		-1	

window-clean_sentence	2	2	2	1	1	2	2	-1	-1
bellykick	-1	2	-1	-1	-1	-1	-1	-2	-1
food-poison_sentence	-2	2	2	-1	1	-1	-1	-1	-1
lion-tame	-1	2	1	2	2	2	1	2	1
trust-gamble_sentence	-2	-2	-2	-2	-1	-2	1	-2	-2
clod-hop	-2	1	1	2	1	-1	-2	1	-2
pillsleep_sentence	1	-2	-2	-2	1	-2	-1	-2	-2
stick-discipline	-1	-2	-1	-2	-2	-2	-1	2	-1
palm-read_sentence	2	2	-1	-2		2	2	-1	-1
fabric-soften	2	2	1	2	1	-1	2	1	2
homespin_sentence	2	-2	-1	-2	1	-2	-1	-2	-2
nametape	2	-2	-2	-1	-1	-2	1	-2	-2
garden-party_sentence	2	2	-1	-2	1	-2	-1	-1	1
eyeread	-2	-2	-2	-2	-1	-2	-1		-2
coldeat_sentence	-2	-2	-2	-2	1	-2	-2	-2	-1
charm-snare	-2	-2	-2	-2	-1	-2	-2	-2	-2
fingercomb_sentence	2	2	1	1	1	1	2	1	2
fire-eat	-2	2	1	-2	1	1	2	-1	-2
curtain-raise_sentence	2	-2	1	-2	1	-1	1	-1	-1
side order	2	2	1	-2	1	1	2	-1	1
earshoot_sentence	2	-2	-2	-2	-1	-2	2	-1	-1
massarrive	1	-2	1	-2	-1	-2	-1	-2	-2
windowcheck_sentence	-1	-2	1	-1	-1	-2	-2	-1	-2

	I								
coldvisit	-2	-2	-1	-2	-1	-1	-2	-2	-2
airstroll_sentence	-2	-2	-2	-2	-1	-2	-1	-2	-2
sticker-price	-2	-2	-1	-2	1	-2	-1	-2	-2
foot-drag_sentence	-2	2	-2	-2	-1	1	-2	-1	-1
headpeck	2	2	-2	-2	1	-2	-2	-2	-1

	Questionnaire #										
	10	11	12	13	14	15	16	17	18		
beauty-sleep	1	2	2	2	2	1	1	-1			
speed-date_sentence	2	2	2	2	1	2	2	2	2		
sun-bathe	2	2		2	2	2	1	2	2		
table-eat_sentence	-2	1	-2	1	-2	-2	-2	-2	-1		
rumour-spread	-2	2	-2	-1	-2	-2	1	-2	1		
colourtaste_sentence	-2	1	1	-1	1	-1	-2	-2			
househop	2	2	-1	1	-1	-1	1	2	1		
stamp-collect_sentence	2	-1	1	1	-1	-1	2	1	2		
laser point	-2	-1	-2	2	-2	-1	-1	1	1		
cherry-pick_sentence	2	2	2	2	2	2	2	2	2		
flypick	-2	-2	-2	-1	-2	-2	-2		-2		
hand-signal_sentence	1	2	2	2	2	2	2	1	2		
shame-lie	-2	-2	-2	-1	-2	-2	-2	-2	-2		
airtest_sentence	1	-1	-2	1	1		-1	2	2		
hand-kiss	1	1	-2	-1	-2	1	1	1	1		
stone-wash_sentence	2	2	2	1	1	2	2	1	2		
handstand	-2	2	2	2	2	1	1	-1	2		
knife-open_sentence	1		-2	1	-2	-2	-1	-2	1		
headplunge	1	-2	-2	1	-2	-2	-2	-2	1		
crutchwalk_sentence	-2	-2	-2	-1	-2	-2	-2	-1	1		
fear-bleed	-2	-2	-2	-2	-2	-2	-2	-2	-1		

window-clean_sentence	2	2	-2	2	2	-1	1	-2	2
bellykick	-2	2	-2	1	1	-2	1	-2	-1
food-poison_sentence	-2	-2	-2	1	-1	-2	2	-1	2
lion-tame	2	2	2	-1	-1	1	2	-2	2
trust-gamble_sentence	-2	-2	-2	-2	-2	-2	-2	-2	-2
clod-hop	1	2	-2	1	1	2	1	-2	-1
pillsleep_sentence	-2	-2	-2	-2	-2	-2	-2	-1	-2
stick-discipline	-1	-2	-2	-2	-2	-2	-2	-2	-2
palm-read_sentence	1	1	2	1	1	2	2	-1	2
fabric-soften	2	2	-1	1	2	1	2	-2	2
homespin_sentence	-2	-2	-2	-2	2	-2	-2	1	1
nametape	-2	1	-2	2	-2	1	-2	-2	-2
garden-party_sentence	1	-2	-2	1	-2	-2	-1	-2	1
eyeread	-2	-2	-2	1	-2	-2	-2	-2	-2
coldeat_sentence	-2	-2	-1	-2	-2	-2	-2	-2	-2
charm-snare	-2	-2	-2	-2	-2	-2	-2	-2	-2
fingercomb_sentence	1	2	-1	2	2	-2	1	1	-1
fire-eat	1	2	-2	2	-1	1	2	-2	2
curtain-raise_sentence	-2	-2	-1	1	-1	-1	-1	-2	1
side order	-2	2	-2	2	-2	1	1	-2	1
earshoot_sentence	-2	-2	-2	1	1	-2	-1	-2	-2
massarrive	-2	-2	-2	-2	-2	-2	-2	-2	-1
windowcheck_sentence	-2	-2	-2	-1	-2	-2	-2	-1	1

coldvisit	-2	-2	-1	-1	-2	-2	1	-2	
airstroll_sentence	-2	-2	-2	-2	-2	-2	-1	-2	-1
sticker-price	-2	-1	-1	-1	-2	-2	-1	-2	-1
foot-drag_sentence	-2	-2	-2	1	-1	-1	-2	-2	2
headpeck	-2	-2	-2	-2	-2	1	-2	-2	-2

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	Questionnaire #									
	19	20	21	22	23	24	25	26	27	
beauty-sleep	1	2	-1	1	2	1	-1	2	-1	
speed-date_sentence	2	2	2	2	2	1	2	2	2	
sun-bathe	2	2	2	2	2	2	2	2	2	
table-eat_sentence	-2	1	-2	-2	1	-2	-1	1	-1	
rumour-spread	1	2	1	-2	1	-2	-1	1	1	
colourtaste_sentence	1	2	-2	1	1	-1	-2	-1	2	
househop	1	2	-1	1	1	-1	1	1	2	
stamp-collect_sentence	-1	2	-2	2	-1	1	-1	1	-1	
laser point	2	2	-1	-2	1	1	-1	1	1	
cherry-pick_sentence	2	2	2	2	2	2	2	2	2	
flypick	1	1	-1	-2	-1	-2	-2	1	-2	
hand-signal_sentence	1	2	2	2	2	2	2	2	2	
shame-lie	-2	1	-2	-2	1	-2	-1	1	-2	
airtest_sentence	2	2	1	2	1	1	2	1	2	
hand-kiss	-2	1	-1	1	1	-1	-1	1	2	
stone-wash_sentence	2	2	2	2	2	2	2	2	2	
handstand	-1	2	2	2	2	2	2	1	2	
knife-open_sentence	-1	1	-2	-2	-1	-2	1	-1	-2	
headplunge	-2	-1	-2	1	-2	-2	1	1	1	
crutchwalk_sentence	-2	1	-1	-2	-2	-1	-1	1	-2	
fear-bleed	-2	-1	-2	-2	-2	-2	-1	-2	-2	

window-clean_sentence	1	2	1	2	1	1	2	2	1
bellykick	-1	2	-2	2	1	-2	2	1	2
food-poison_sentence	-1	1	1	2	-1	-2	2	1	1
lion-tame	2	2	2	2	2	2	2	1	-1
trust-gamble_sentence	-2	1	-2	-2	-1	-2	-1	-1	-2
clod-hop	1	2	1	-1	-1	2	1	1	-2
pillsleep_sentence	-2	1	-2	-2	-1	-2	-2	-1	
stick-discipline	-2	1	-1	-2	-1	-2	-1	1	-2
palm-read_sentence	-1	1	2	-1	1	2	2	2	-1
fabric-soften	1	2	2	2	-1	1	2	-1	-1
homespin_sentence	-2	2	-1	1	-1	-2	-1	-2	-2
nametape	-2	-1	-1	1	-1	-2	-1	-1	-2
garden-party_sentence	-1	2	-2	-2	1	-1	1	1	-2
eyeread	-2	1	1	-2	-2	-2	-1	-1	-2
coldeat_sentence	-2	-1	-2	-2	-1	-2	-1	1	-2
charm-snare	-2	1	-2	-1	-1	-2	-2	-1	-2
fingercomb_sentence	2	2	2	2	1	1	2	2	2
fire-eat	2	1	1	-2	1	1	-1	1	-2
curtain-raise_sentence	-1	1	-2	-2	-1	-1	2	1	-2
side order	-1	2	2	1	1	-1	1	1	-2
earshoot_sentence	-1	-1	-2	-2	-1	-2		-1	-2
massarrive	-2	-1	-2	-2	1	-2		1	-2
windowcheck_sentence	-2	1	-2	1	1	-1		1	1

coldvisit	-2	1	-2	-2	1	-2		-1	-2
airstroll_sentence	-2	-1	-2	-2	-2	-2	-1	1	-2
sticker-price	-1	2	-1	-1	-1	-1	1	1	-2
foot-drag_sentence	-2	-1	-1	-1	-1	-2	1	1	-1
headpeck	-2	-1	-1	-2	-1	-2	1	1	-1

	Questionnaire #									
	28	29	30	31	32	33	34	35	36	
beauty-sleep	1	2	2	1	2	1	1	1	1	
speed-date_sentence	-2	1	2	2	2	2		2	2	
sun-bathe	-2	2	2	2	2	2	2	2	2	
table-eat_sentence	2	-2	1	1	-2	-2	-1	1	-2	
rumour-spread	1	1	-1	1	-1	-2	1	-1	-2	
colourtaste_sentence	1	-1	1	-1	-2	2	1	-1	1	
househop	-1	1	-1	1		2	-1	1	-1	
stamp-collect_sentence	-1	2		-1	2	2	1	-2	-2	
laser point	-2	2	-1	1	2	2	2	2	1	
cherry-pick_sentence	-2	2	2	2	2	2	1	2	2	
flypick	1	-2	-2	-2	-1	-2	-1	-2	-1	
hand-signal_sentence	-2	2	2	2	2	2	1	2	2	
shame-lie	2	-2	1	-1	-2	1	-2	-1	-2	
airtest_sentence	1	-1	1	2	1	2	2	-1	1	
hand-kiss	1	-1	1	1	-1	2	-1	2	1	
stone-wash_sentence	-2	2	1	2	2	2	1	2	2	
handstand	-2	-1	1	1	2	2	2	-1	-2	
knife-open_sentence	1	-2	-1	-1	1	-1	1	-2	-1	
headplunge	1	-2	2	-1	2	2	1	-1	1	
crutchwalk_sentence	1	-2	-2	-2	-2	2	-1	-1	-1	
fear-bleed	2	-2	-2	-2	-2	-2	-2	-2	-2	

APPENDIX

window-clean_sentence	-1	2	-2	-1	2	2	2	-1	1
bellykick	1	-1	1	1	1	2	-1	-1	1
food-poison_sentence	1	1	-1	2	2	2	1	2	-2
lion-tame	-1	2	-2	2	2	2	2	-1	1
trust-gamble_sentence	1	-2	-2	-1	-2	-2	1	-2	-2
clod-hop	-2	-1	-2	1	-2	2	-2	2	-2
pillsleep_sentence	1	-2	-2	-2	-2	2	-1	-1	-2
stick-discipline	1	-2	-2	-2	-2	-2	-1	-2	-1
palm-read_sentence	1	1	2	2	1	2	1	2	-2
fabric-soften	-2	2	1	1	2	2	2	-1	2
homespin_sentence	1	-2	-1	-1	-2	2	1	-1	1
nametape	1	-2	-2	-1	-1	-2	-2	-1	2
garden-party_sentence	1	-1	1	-1	-1	2	1	1	-1
eyeread	2	-2	-1	-1	-1	-2	1	-2	-1
coldeat_sentence	2	-2	-2	-2	-2	-2	-1	-2	-2
charm-snare	2	-1	-2	-2	-2	-2	-2	-2	-2
fingercomb_sentence	-1	2	2	2	2	2	2	2	2
fire-eat	-1	2	-2	2	-1	2	1	-2	-2
curtain-raise_sentence	2	-2	-2	1	1	-2	1	1	-1
side order	-2	-2	2	1	2	2	1	1	1
earshoot_sentence	1	-2	-2	-2	1	-2	1	1	-2
massarrive	2	-2	-2	-2		-2	-2	-2	-1
windowcheck_sentence	1	-1	2	-1	1	-2	1	1	-2

coldvisit	2	-2	-2	-2	-1	-2	1	-2	1
airstroll_sentence	1	-2	-2	-2	-1	-2	1	-1	-2
sticker-price	1	-1	-2	-2	2	2	2	-1	-2
foot-drag_sentence	1	-1	-2	-2	1	-2	1	1	1
headpeck	1	-2	-2	-2	1	-2	-2	-1	-2

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				Questionnaire #
	37	38	39	
beauty-sleep	1	1	2	
speed-date_sentence	2	1	2	
sun-bathe	2	1	2	
table-eat_sentence	-2	-2	-2	
rumour-spread	1	-2	1	
colourtaste_sentence	-2	-2	1	
househop	1	-2	2	
stamp-collect_sentence	2	-1	2	
laser point	2	1	1	
cherry-pick_sentence	2	2	2	
flypick	2	-2	-2	
hand-signal_sentence	-2	2	2	
shame-lie	1	-2	-2	
airtest_sentence	2	-1	2	
hand-kiss	1	-2	2	
stone-wash_sentence	2	2	2	
handstand	2	2	2	
knife-open_sentence	-1	-1	-1	
headplunge	-2	-2	-1	
crutchwalk_sentence	-1	-2	1	
fear-bleed	-2		-2	

window-clean_sentence	2	-1	1	
bellykick	-1	-2	-1	
food-poison_sentence	2	-2	2	
lion-tame	2	-2	2	
trust-gamble_sentence	-2	-2	-2	
clod-hop	1	2	1	
pillsleep_sentence	-2	-2	-2	
stick-discipline	-2	-2	-2	
palm-read_sentence	2	-2	2	
fabric-soften	2	1	1	
homespin_sentence	-2	-2	1	
nametape	-2	-2	-2	
garden-party_sentence	-1	2	1	
eyeread	-1	-2	-2	
coldeat_sentence	-2	-2	-2	
charm-snare	-1	-2	-1	
fingercomb_sentence	2	-2	2	
fire-eat	-2	-2	-2	
curtain-raise_sentence	1	-2	-2	
side order	1	2	2	
earshoot_sentence	-2	-1	-2	
massarrive	-2	-2	-2	
windowcheck_sentence	2	-2	-1	

coldvisit	-1	1	1	
airstroll_sentence	-2	-2	-1	
sticker-price	1	-2	-2	
foot-drag_sentence	-1	-1	-1	
headpeck	-2	-2	-2	