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Semantic packaging in verb-based compounds in English and Bulgarian

0. Introduction[1]

Compounding, *prima facie*, presents a seemingly paradigm case of morphology-as-syntax, or conversely, of syntax-as-morphology. Marianne Mithun [Mithun 1984] contends that compounding is the most morphological of all syntactic processes. But a few notorious facts about compounds (the Lexical Integrity Hypothesis [Di Scullio, Williams 1987] and anaphoric island phenomena [Postal 1969], to name but two) suggest that the "syntax all the way down" approach leaves a lot about compounds unexplained. Instead of embracing a "syntax is all" view, we rather side with Laurie Bauer [Bauer 2001] and Ray Jackendoff [Jackendoff 2009] whose views jointly offer the possibility for interpreting compounding and compounds as unique, pocket phenomena in language. Subscribing to this view, we would like to clarify that our approach

[1] We want to express our gratitude to an anonymous reviewer for the valuable comments, criticisms and suggestions. All remaining errors of reasoning or expression are our own.

is driven by questions concerning lexicology and semantics. Even though we recognize compounding as an extremely productive word-formation process in Modern English and a more restricted one in Modern Bulgarian, we contend that there are sufficient grounds for analytical dissociation between compounding as a process[2] and compounds as a special type of lexical items. Our focus from now onwards will be mainly on compounds, with sporadic reference, where appropriate, to the process of compounding. Our choice is not a terminological whim. Rochelle Lieber and Pavol Štekauer [Lieber, Štekauer 2009: 2] voice a similar possibility of disjunctively approaching compounds and compounding by wondering "whether compounds exist as a distinct species of word formation". Of specific interest to us are only verb-nexus substantive compounds and compound verbs. This self-imposed restriction is motivated by the idea that these two types of compounds share a lot in terms of internal semantics and mechanisms for computing the meaning of the whole to allow for a uniform analytical approach and to be suggestive of similar linguistic phenomena. In view of the fact that only diachronic (and not always highly reliable see [Erdmann 2000, 2009]) data can reveal whether what is nowadays used as a compound verb has arisen via back-formation, conversion, noun-incorporation or composition proper, we will stick to Dieter Kastovsky's type of morphosemantic analysis of word-formedness [Kastovsky 2005: 107], instead of a process-based word-formation analysis. We believe that this choice tallies naturally with our main interest in the semantic properties of compounds.

The aims of the research are to find out how different or similar two sets of compounds (verb-nexus substantive compounds and compound verbs) are in two distantly genetically[3] related, but typologically distinct languages and to test out the hypothesis of the powerful role of word-formation paradigms. The disjunction between word-formation processes and their canonical products is bridged by the concept of word formation-paradigm which collapses the opposition between rule- and process-based interpretations of word-formation phenomena and schema- or analogy-based interpretations which

[2] *Process* and *pattern* as used here are not synonymous terms. Process relates to the gross distinctions generally drawn between compounding, affixation, blending, clipping, etc. *Pattern* denotes the formally distinguishable models within each process type. *Word-formation type* covers both conceptual domain specificity and semantic specialization as defined by [Kastovsky 2005].

[3] Bulgarian is a Slavonic language, while English a Germanic one. English is characterized typologically as highly analytical, isolating one [Štekauer et al. 2012]. Bulgarian is described as a fusional-inflectional language [Manova 2005; Nitsolova 2008] with a moderate degree of analyticity.

focus on products (or word-formation types) as templates and their subsequent use as lexical objects to be imitated. As Geert Booij [Booij 2010: 93] maintains, if instead of recognizing abstract rules and schemas (a process-focused approach), we subscribe to an analogy-based approach, it would be possible to pay due attention to semantic specializations and apply the adequate degree of granularity of analysis (generalization) to be able to describe a wide variety of word-formation data.

The disjunction between process and product does not lead to the denial of the validity of either concept, but is aimed at restricting process-driven semantic interpretations [such as Lieber 2004; Guevara and Scalise 2004] which invariably prescribe a hierarchically ordered argument realization pattern in verb-centered compounds. As our analysis shows this process-based generalization does not hold true as frequently as an analytical generalization should do. The concept of the word-formation paradigm, in our opinion, functions as an operationalization of Booij's idea of analogy and rule-based processes constituting endpoints of a scale of schematicity [Booij 2010: 93].

Contrasting purportedly uniform phenomena in languages requires also another operationalization, that of tertium comparationis. The specific units we have chosen to use as tertium comparationis are lexico-semantic domains in whose analysis it is possible to combine as analytical tools *word-formation types (WFT)* and *the frame*. The former is understood as basically defined by [Kastovsky 2005] with the inclusion of the definition of the conceptual domain to which the semantic type belongs. Thus, "[a] *word-formation pattern* in Hansen's sense represents a formal-morphological structure regardless of its semantics, e.g. patterns such as V + N (e.g. *cry-baby*, *drawbridge*, *bakehouse*, etc.), V + *ing* + N (*dancing girl*, *chewing gum*, *dwelling place,* etc.). A *word-formation type* is constituted by a particular semantic relationship between the constituents of a word-formation pattern, e.g.: V + N: 1) 'person characterised by performing some activity': *crybaby*, *callboy*, *playboy*, etc., 2) 'person affected by some activity': *callgirl*, *pin-up girl*, etc., 3) 'object undergoing some action': *drawbridge*, *pushcart*, *treadmill*, etc., 4) 'place where some action is carried out': *bakehouse*, *dance hall*, *runway*, etc.; V + ing + N: 1) 'person characterised by performing some activity': *dancing girl*, *working man*, *sleeping partner*, etc., 2) 'person affected by the verbal action': *whipping boy*, etc., 3) 'object undergoing some action': *chewing gum*, *cooking apple*, *drinking water*, etc., 4) 'place where some action is carried out': *dwelling place*, *gambling house*, *dining room*, etc." [Kastovsky 2005: 8].

The latter is understood as "the structured way in which the scene is presented or remembered" [Fillmore 2006: 378]. "[W]e can say that the frame structures the word-meanings, and that the word 'evokes' the frame" [Fillmore 2006: 378].

The preference for approaching compounds in English and Bulgarian from the point of view of word-formation types rather than exclusively of word-formation patterns is driven by the belief shared with Shmuel Bolozky that "lexical formation is first and foremost semantically based and concept driven" [Bolozky 1999: 7]. Such an approach is also harmonious with our view that word-formation paradigms play a significant role in the lexicon by providing a template for systematic onomatologically and morphosyntactically motivated formations which flesh out the existing slots in an initially delineated conceptual space.

The article is structured as follows: in part one we lay out the theoretical frameworks which have informed our analysis, part two presents an analysis of the similarities and contrasts between synthetic nominal compounds in English and Bulgarian; part three is devoted to the study of compound verbs; and in parts four and five some conclusions at different degrees of generality are drawn and venues for further research are outlined.

1. Theoretical considerations

1.1. The background

Although this part is intended as a theoretical background, it needs to be stated at the very beginning that the analyses offered and the conclusions made are based on the study of two corpora: a corpus of compound nouns (1015 English and 826 Bulgarian items) and a corpus of compound verbs (475 English and 72 Bulgarian items). The figures express type occurrences and will not be used for any quantitative claims. The corpora have been compiled from a variety of sources (COCA, BNC, word spy, urban dictionary, works of fiction, the media, scholarly articles, etc.[4]). On the basis of deductive and (preliminary) inductive arguments, some of the results of which will be used as illustrations throughout, we claim that while in the nominal domain the similarities between English and Bulgarian prevail, in the verbal domain more differences than similarities are observed. To account for the discrepancy we hypothesize that the involvement of parasynthesis licenses in Bulgarian far more (nominal compounds) than noun incorporation in the verbal domain. Furthermore, the flexible part-of-speech system in English and the absolute grammatical homonymy between the present participle and the gerund (and

[4] For a full description of the sources of data see Appendix 1.

some prototypical nouns) in English potentially creates different compound types and strengthens the role of word-formation paradigms in the enrichment of the lexicon. This allows for numerous compound verbs to appear (at least as nonce-formations or occasionalisms[5]).

1.2. Major theoretical preliminaries

Without specifically adopting any identifiable theory, we assume that there is not a sharp distinction between grammar and the lexicon. In parallel to Ray Jackendoff and Eva Wittenberg's interlinguistic hierarchy of grammars [Jackendoff and Wittenebrg 2012], we propose that there is a similar intra--language hierarchy of meaning packaging options whose choice depends on at least the following variables: genre, immediate situational context, speaker's preferences and linguistic background and the mode of interaction between interlocutors which would determine the degree of explicitness necessitated in a given communicative exchange. Standard phrasal syntax and compounds are seen as alternative modes of packaging following different internal logic. In keeping with Jackendoff's [Jackendoff 2009] contention that in compounds proto-syntactic combinatorial patterns prevail, we believe that the syntax of a language has only an indirect influence on the shape and types of compounds in a given language mediated by the part-of-speech system with the concomitant inflectional morphology. Proto-syntax, as the alternative name for "a simpler grammar", is characterized according to [Jackendoff 2009] and [Jackendoff and Wittenberg 2012: 1] as an expression system which puts "more responsibility for understanding on pragmatics and understanding of context. As the grammar gets more complex, it provides more resources for making complex thoughts explicit." Even though Jackendoff and Wittenberg define the "hierarchy of grammars" as a continuum along which the grammatical systems of languages with different degrees of complexity can be arranged, we assume that it is possible for the different resources of a single language to be arranged into a grammar hierarchy, where different patterns for packaging meaning display properties that can be arranged along the scales of complexity and explicitness[6]. Thus an onomasiological need can be satisfied by various means. Onomasiology deals with the relationship between the process of constructing a concept as a generalized reflection of objective reality in human

[5] Such a claim is based on the incidence of numerous compound verbs in COCA and *word spy* and their absence from OED.

[6] Explicitness is associated with obligatoriness, predictability and transparency of internal relations which characterize grammatical encoding.

consciousness and the realization of this concept in language in accordance with the available naming means [Štekauer 2005: 49]. When a compound is used, the relation of explicit expression to possible interpretations is effected by semantics exclusively (for example the interpreter resorts to notions such as *object* vs. *action*), rather than by syntax (i.e. the interpreter does not need to resort to distinctions such as *argument* vs. *predicate*). In other words, syntax has no access to the compound-internal structural and semantic relations and its rules are not necessarily exploited in interpreting the lexical meaning of a compound.

1.3. Methodological considerations

Within this general understanding of language as layers of complexity providing alternative means of expression, the specific methodology adopted is frame semantic analysis which stays true to our meaning-focused and meaning--motivated approach. We assume the frame to function as a conceptual-linguistic interface which maps onto different constructions. The latter, in their turn, function as the meaning-form interface. This implies that a certain degree of correspondence is expected between word-formation types and word-formation patterns (or in contemporary constuctionist parlance 'constructions'). The expected fit is far from perfect and is revealed in terms of tendencies rather than in terms of specialized constructions recruited specifically for a particular word-formation type. The application of the constructionist approach [Booij 2010; Croft 2001; Goldberg 2006] offers a way of combining a parallel account of word-formation types and word-formation patterns. Word-formation patterns are assumed here to be constructions at an intermediary level of specificity, in which derivational and lexical meaning are configured by inheritance relations. Derivational meaning is assumed to capture the semantic relation between a derivative word and its motivating base [Тетовска-Троева 1999: 224; Радева 2007: 34]. It is not to be equated with lexical meaning as they name different facets of the overall semantics of a lexical item. Typically, lexical meaning is more comprehensive and covers all idiosyncratic lexicalization developments in a lexical item. The two can coincide if the word-formation process and the formant are both fully productive. Yet, siding with Maldjieva, we take lexical meaning to be the global meaning of the lexical unit as a semantically indivisible string of signs with referential value [Малджиева 2009: 65]. Derivational meaning will be preserved for the prototypical meaning of a construction schema viewed at a particular level of schematization. The two types of meaning are implicated in relations of inheritance and correlated by process of semantic change (including metonymy

and metaphor). Furthermore derivational meaning is a notion akin to compositionality, i.e. the belief that a regular process yields predictable results dependent on the input variables, while lexical meaning is associated with analyzability[7] and contextually determined conceptualization.

1.4. The concept of the word-formation paradigm

As mentioned in the Introduction, we take the concept of the word-formation paradigm as a theoretical construct and analytical heuristic providing the ease of tension between processes (understood as rule-application) and products (which might not necessarily arise from the same process but share all their properties as lexical objects, including their morphotactics). On a process--based account it is generally assumed that synthetic compounds, "do express a straightforward semantic relation. Secondary compounds are characterized by an argumental relation between the constituents: it is a logical condition of this type of compound that at least one of the constituents is of verbal nature (i.e. a *pure* V, or a deverbal derivative)" [Guevara, Scalise 2004: 8].

Such an interpretation would imply the postulation of "baby" in *baby-sit* as an object of an intransitive verb, of "house" in *house-train* as the locative adjunct of a verb not associated with an obligatory locative complement and "stage" in *stage-manage* would remain indeterminate between a locative and object reading. Such caveats can be avoided if a single lexical product is taken as a rough template for analogical construction of further lexical objects which do not inherit or derive any necessary properties from an implicated process of derivation. The word-formation paradigm as a network of lexico-semantically motivated relations between words avoids the procedural implications but preserves the potentiality of analogical creations succumbing to conceptually (onomasiologically) determined relations.

The word-formation paradigm is a contentious issue. The concept of the paradigm is traditionally associated exclusively with inflectional morphology [see Anderson 1992; Aronoff 1994; Stump 2001]. An illustrative example of the prevalent position which sees a sharp boundary between inflectional morphology and word-formation can be found in Gregory Stump's comments, "paradigms play a central role in the definition of a language's inflectional morphology. This centrality is manifested in a variety of ways: for example, the sequence in which inflectional rules apply in the realization of a word's

[7] For the definition of the notational terms compositionality and analyzability and the contrast between them see [Langacker 2008].

morphosyntactic properties may systematically depend on the cell which that word occupies within its paradigm" [Stump 2001: 32].

At the same time a different view has also been around in morphological circles, namely that inflection and word-formation form a continuum [see Van Marle 1985; Bochner 1993; Pounder 2000; Bauer 1997; Booij 1997]. Such a view presupposes the elaboration of a generalized notion of a word-formation paradigm as a theoretical construct and the setting of criteria for distinguishing between inflectional and derivational phenomena. For the purposes of our argument, we define a word-formation paradigm as patterns of relationships among derived words, where derived is used in the wide sense of constructed encompassing all kinds of complex words. While inflectional and derivational paradigms are not parallel in function and may differ in their range of applicability, they do share many of the same characteristics. Neither of the problematic areas in discussing word-formation paradigms has been sufficiently explored and each deserves a separate article, but for lack of space we will restrict ourselves to a few brief comments which will demonstrate our understanding of word-formation paradigm and its role in compounding phenomena, without providing the argumentation for our position (for details see Stamenov and Kolarova, forthcoming).

Besides the two subsystems of language displaying gradual properties (i.e. inflection and derivation), exponents of one or the other can be formally identical. One and the same affix may serve both as a mark of inflection in one context and as a mark of derivation in another context. A classic example is the English affix *-ing*, which is clearly inflectional in the present participle *painting* as used in *I am painting the kitchen* and derivational in the noun *painting* as used in *a collection of paintings by American artists*.

Yet, it is possible in a theory neutral way to draw a meaningful distinction between inflectional paradigms and word-formation paradigms. Inflectional paradigms fix a particular set of morphosyntactic properties whose main function is to prescribe the grammatical behaviour of the lexical items fleshing out the grid of the set. A word-formation paradigm on the other hand sets the onomasiological categories with which a specific conceptual space can be associated – thus we will find in a dictionary *~er*, given as a run-on within the entry of the verb *read*, even without an explanation of its meaning. This, of course heavily relies on the paradigmatic relation between *read* and *reader* and the understanding of the semantic relation which yields the second on the basis of the first. The paradigm can be seen as a set of associations between onomasiological types [Štekauer 1998] and conceptual prototypes. This already gives us what in some linguistic traditions has been called a "word-formative pair" – two words in a word-formative relationship. Such a pair may be seen as the minimum

word-formative paradigm. But *reader* on its part may be extended to *readership*, thus giving us the chain: *read-reader-readership*. And one could think of longer and more complicated chains with various ramifications, where the words exhibit various degrees of closeness in their relationship. Once a concept has been emancipated for naming it sets up in the form of expectations a template of possible incidences in different onomasiological types.

With these preliminaries settled we can now look into the peculiarities of synthetic compound nouns and compound verbs in Bulgarian and English. The point of interest is to see how similar or different compounds of the major lexical categories as output are in the prototypical language of compounds – English and in a typologically different one where compounds are considered marginal.

2. Verb-nexus substantive compounds in English and Bulgarian

Verb-centred or (para)synthetic[8] compounds are compounds in which the verbal base is expressed in their right-hand constituent, i.e. the head, and the left--hand element has a thematic role in relation to the head which is identical to the role the left-hand constituent has in a corresponding clausal construction. Due to this thematic correspondence, the interpretation of verb-centred compounds has been claimed to be quite predictable [Carstairs-McCarthy 1992: 109], e.g. *risk-taker* – 'a person who *takes risks*'; *water heater* – 'a device that *heats water*', etc. Also, since the relation between the two constituents of a verb-centred compound is a relation of complementation rather than modification, glosses in terms of 'a kind of' tend to be less plausible with verb-centred compounds than they are with noun-centred compounds [Huddleston, Pullum 2002: 1652]. Despite these simple and generally unquestioned opinions it is not clear how *risk-taker* gets an agentive reading, while *water heater* is instrumentally interpreted. More importantly, the internal constituency in the two words is identical, and the licensing affix is also the same[9]. Yet, one is interpreted as an agent nominal and the other as an instrument. If we rely on correspondence with a presumably underlying clausal pattern we will get *Somebody takes risks* and *Someone heats water*. Both the mor-

[8] For the difference between synthetic and parasynthetic compounds see [ten Hacken 2010] and [Melloni, Bisetto 2010].

[9] It can be argued that we have in the two lexical items two distinct affixes in the English language, but more acceptable is the interpretation which accepts *-er* as a radial category, a single form which has developed a number of metaphorically or metonymically derived meanings.

phological makeup and the purported underlying syntactic patterns are identical, so the only way to account for the difference between the lexical meanings of the two verb-nexus compounds is conceptual or meaning-based. The frames that the verbs *take*[10] and *heat* evoke and are evoked by differ in terms of participants and components and the meaning difference between the two compounds can be explained by the activation of different intra-frame relations. Simply put, *water heater* is ambiguous out of context between two readings – an agent reading and instrument reading (it is possible to imagine a context in which *water heater* could describe a person let's say on a ship or a communal/shared premise whose task is to heat the water for everyone's tea or instant coffee in the morning), which are potentially equally probable. Such an alternative is not available for *take*, as there is no instrument/manner constitutive component inherent in the frame. Thus the conceptual-onomasiological base which gives rise to all word-formation products containing the respective simplex verb in any given form determines the possible interpretations of a complex lexical item. The frame is the easiest way to operationalize the notion of the conceptual-onomasiological base.

Without going into detail in numerous specific lexico-semantic analyses of separate lexemes, we will present below the results of our research in the form of a table summarizing the prevalent WFTs and conceptual domains in the two languages under scrutiny with illustrative examples and provide some comments on the findings. The comments include a description of the word-formation patterns which characterize the set of synthetic compounds in English and Bulgarian.

Table 1. WFTs in Bulgarian and English synthetic compound nouns

WFT (domain)	Bulgarian	English
Occupations	иконописец, стоманолеяр, тютюноберач, телохранител, машиноконструктор, тютюноработник животновъд, езиковед, кукловод	cabdriver, caregiver, hairdresser, window-cleaner, window-dresser, grave-digger body guard, chimney sweep
Attributes	вероломство, честолюбие, гостоприемство, родолюбие, чревоугодие	
Metonymic attributes	блюдолизец, загоритенджера, всезнайко, войнолюбец, богоотстъпник, въжеиграч (фиг.)	dreadnought, killjoy, cutthroat, cheerupper, underachiever, early-riser, godsend

[10] The constituency of the frames discussed in the article has been extracted from FrameNet.

WFT (domain)	Bulgarian	English
Instruments/ appliances	бетоновоз, браздомер, водомер водоотвод, водопровод, ръкохватка, самопрекъсвач, парочистачка, пожарогасител	cash dispenser, pen holder, pencil--sharpener, bell-push, toothpick windbreak, breakwater
Plants and animals	мухоморка, броненосец, мишеловка, скорозрейка, вълкодав, дървояд, лешояд, мравояд, слънчоглед, стърчиопашка	burstcow, catchfly, cover-shame, wagtail, turnstone
Natural phenomena	земетръс, листопад, слънцестоене, земетресение, водопад, горолом, ветровал	windfall, earthquake, undertow, landslip, landslide
Locations	каменоломна, книговезница, книгохранилище, корабостроителница, водолечебница	bus-stop, cattle run, catwalk deer lick, hen run, sheep run sheep walk, train stop, hideout
Activities (processes)	зъбогниене, сърцебиене, самолетостроене, лъчеизпускане, словообразуване, гъбопроизводство, текстообработка	assertiveness training, backslapping, self-debasement, nose bleed, blood flow, back ache

There are a lot of striking similarities between the English and the Bulgarian verb-centred category of compound nouns but at the same time, both English and Bulgarian have their own specific sub-patterns and peculiarities. What attracts one's attention when looking at the table is the lack of a WFT in English which is considered the prototypical language of compounds. The lacking WFT is associated with Attributes. Some of the phrasal-verb-based nouns can be used attributively but as this applies to all kinds of nouns in English and is a matter of grammatical homonymy or of syntactic promiscuity, we will not dwell on that. The point of interest is that the observed lack in the system of synthetic compound nouns in English can be explained with the specialization of root compounds (which are generally uncharacteristic of Bulgarian) for satisfying this onomasiological need.

As for the preferences for involving particular frame components in the morphotactic makeup of the synthetic compound nouns in both languages there seem to be no restrictions. All kinds of components (from Agents through Themes to Modifiers) are permissible in the internal constituency

of compounds. There are no observable patterns with marked higher potency in either language and no remarkable differences.

As can be seen from the table there is no one-to-one correspondence between domain and WFP. There are certain tendencies for correspondence but they are associated with the licensing suffixes and are more pronounced in Bulgarian, where suffixes seem to be more conspicuously specialized semantically. A great number of the analyzed compounds are characterized with the lack of a suffix. They are not perceived or marked in any way as special. As lexical objects they satisfy all the criteria of canonical compounds [Donalies 2004: 76; cited after Lieber and Štekauer 2009: 6–7] and together with the suffixed ones constitute the class of verb-nexus substantive compounds in the two languages under study. The diversity of licensing suffixes in Bulgarian, compared to the comparatively fewer ones in English is indicative of two things – the richness of derivational (in the narrow sense of affixal) morphology in Bulgarian and the strong correlation between word-form and part of speech membership, which is generally lacking in English. Thus in English the synthetic compound nouns are licensed by one of the nominalizing suffixes *-er*[11], *-ing, -al, -ance*, *-ation* (*-ion*), *-ment* and *-ure* as in *hair-removal, car insurance, book-production, law enforcement, cocaine seizure*, etc. It appears that in Bulgarian the licensing suffixes tend to be more clearly associated with specified WFT:

-тел, ***-ач***, ***-ник***, ***-ец***, ***-ар*** (***-яр***), ***-ор***, ***-ьор*** and less frequently ***-ко*** with Occupations;

-ачка, ***-тел***, ***-ка***, ***-ач***, ***-ник***, ***-ор*** (***-атор***) and very rarely on the suffix ***-ец*** with Instruments/Appliences;

-не, ***-ство***, ***-ние***, ***-ие***, ***-овка***, ***-ка***, ***-ница***, ***-ба*** and ***-еж*** with Activities;

-на, ***-ица***, ***-ище*** with Locations.

Admittedly, in both languages the phenomenon of affix polysemy or homonymy blurs the clear boundaries of suffixal specialization for deriving the WFTs in a particular domain. The issue is controversial and requires further detailed investigation.

At the same time the non-affixal synthetic compounds in Bulgarian are very few and are confined to the WFTs and domains Plants and animals and Metonymic attributes. This implies that non-affixal synthetic compounds are necessarily marked by metaphor or metonymy and tend to be characterized by a high degree of lexicalization, which is taken to mean that when we try to trace their structure to syntactic sources, "the distinction between what is common and what is idiosyncratic is lost in uncertainty" [Matthews 1991: 88]. The necessary involvement

[11] There is a notable specialization of the *–er* licensing suffix in English for Occupations and Instruments/Appliances but on the whole verb-nexus compounds need not be licensed by a suffix in English and there do not seem to be conspicuous correlations between conceptual domain and licensing suffix.

of metaphthonymy (for the definition of the term see [Goossens 2003]) in non-affixal synthetic compound nouns is indicative of the heightened tendency for iconicity in word-formation in Bulgarian. If there is no formal expression of a meaning component, then the compound is marked as special and involves mechanisms of semantic transfer. Fully in keeping with this tendency is the marked preference in Bulgarian for the inclusion of a linking element in the morphotactics of synthetic compound nouns. The two components of the compound are linked by a vowel. In most of the cases this is the vowel ***-o-*** as in *глас**о**подавател, памук**о**берач, бог**о**хулство, звезд**о**гадател, машин**о**писец, гроб**о**копател, закон**о**нарушител, лиценз**о**дател,* etc. and sometimes the linking vowel is ***-e-*** as in *зем**е**владелец, зем**е**тресение* or *лъч**е**изпускане*. The vowel ***-e-*** is often part of the first stem of the compound as in *въж**е**играч, здрав**е**опазване, сърц**е**биене, дет**е**убиец,* etc. In some cases, this holds true for the vowel ***-o-*** as well, e.g. *жит**о**производител, вин**о**продавец, стъкл**о**поставяне* or *кин**о**любител*. It should be noted that the linking vowel between the two constituents is a formal characteristic feature of most Bulgarian compound nouns [Георгиева 1967: 170–171; Мурдаров 1980: 451], irrespective of whether they are verb-centred or noun-centred.

All in all, the types of synthetic compound nouns in English and Bulgarian are comparable and there are more similarities than differences. This could support claims that compounding is a universal word-formation process operative in all languages irrespective of their type [Libben 2006]. As lexical objects (para) synthetic compounds constitute a more or less well-delineated class. Despite the diversity of WFP and domains actualized by verb-nexus compounds, they are all conceptually derivative and have achieved a certain degree of lexicalization, irrespective of their morphotactic makeup. The argument about the disjunction between process and product finds further support in the empirically established disproportionate association of (para)synthesis and structural types of compounds (nouns vs. verbs). The argument hierarchy process interpretation of the semantics of compound verbs runs counter to the semantic lexicological evidence for English (for details see [Bagasheva 2012]).

As we proceed with a discussion of our findings about compound verbs, we will notice more differences than similarities. Bulgarian is a language of high grammatical complexity and requires that its parts of speech be marked (including by word-formation processes) and this leads to a predominance of parasynthetic noun compounds. Parasynthesis in verbs is atypical in both languages and this leads to a very restricted compound verb lexicon in Bulgarian. Two facts (both stemming from the flexible part of speech system of English [Vogel 2000]) account for the much richer compound verb lexicon in English – *-ing* homonymy and all-pervasive conversion.

3. Compound verbs in English and Bulgarian

Analyzing the meaning of compound verbs implies answering the question how lexical semantics, compositional semantics, and morphosyntax interact to produce the lexico-semantic specification of a compound verb. Emphasizing the lexical in the lexico-semantic description of a compound verb implies that standard semantic properties associated with the representation of events, such as *Aktionsart*, telicity, incrementality, habituality, etc. will not be discussed. The levels of generalizations chosen here are the lexical concepts associated with compound verbs and the constructional idiom which they instantiate. This determines the focus of this part, namely the range of semantic interpretations and the corresponding morpho-syntactic behavior displayed by the class of compound verbs in English and Bulgarian.

In the case of compound verbs, the constructional idiom [X Y] V specifies a general scene profiled as a relational concept and the "affordances[12]" of particular objects and the circumstantial details involved are used to conceptualize the scene in detail and on the basis of relevance and salience considerations to choose the focal components of the scene that will be included in the name for the scene. The ultimate determinants of relevance and salience are the two overriding principles which contribute significantly to the cognition-language interface: egocentricity (speaker-centered and determining cognitive salience[13]) and anthropocentricity (which is human being-based and determines ontological salience).

[12] The term is here used as defined by [Kaschak, Glenberg 2000; Glenberg, Kaschak 2002]. In arguing against the predominant but incorrect treatment of language as a symbol manipulating system, the authors promote the view that language is an activity-grounded and action-sensitive cognition-externalizing system. They claim that "people consider possible interactions with the objects when creating meaning" [Kaschak, Glenberg 2000: 508]. "Affordances are potential interactions between bodies and objects. Thus, a chair affords sitting for adult humans, but not for mice or elephants, who have the wrong sorts of bodies to sit in an ordinary chair" [Glenberg, Kaschak 2002: 558–559]. This allows us to claim that a cognitive model "specifies a general scene, and the affordances of objects are used to specify the scene in detail sufficient to take action" [Kaschak, Glenberg 2000: 508], i.e. prototypical frame constituents function conceptually as specifiers of activities and surface as foregrounded values in CVs.

[13] Ontological salience is understood here as defined by [Schmid 2007], "[t]he idea is that by virtue of their very nature, some entities are better qualified to attract our attention than others and are thus more salient in this sense. […] The notion of salience may thus denote both a temporary activation state of mental concepts (cognitive salience) and an inherent and consequently more or less permanent property of entities in the real world (ontological salience)" [Schmid 2007: 120].

Table 2. WFTs of compound verbs in Bulgarian and English

WFT (domain)	Bulgarian	English
Self-directed activities	самоотбранявам се, самобичувам се, самозабравям се, самообвинявам се, само--съхранявам се, самосезирам се	self-destruct, self-center, self--exist
Physical activities Cooking verbs Drying verbs Feeding verbs others		deep-fry, French-fry spin dry, rough dry, spoon-feed, force-feed cold-cock, upend, bottle brush, mud wrestle, deadlock
Socially significant activities	бракосъчетавам, гласоподавам	culture jam, doorstep, graymail, chili-pepper, hamstring, hero--worship, multi-dad
Decision-making		cherry-pick
Social sanction	благославям	blackball, blacklist, white list, deepsix
Interpersonal relations	злодействам, злочинствам, злосторнича, зложелая благопожелавам, благодаря	brown-nose, bear kiss, bear hug, apple-polish, back-scratch, boot-lick, kiss ass, freeload, grand-stand, ill-treat
Mental states and emotions (both causative and inchoative)	главозамайвам, главоблъскам се, умопомрачавам се,	hag-ride, browbeat, brainstorm, brainwash
Financial activities*		ear-mark, bankroll, crowd-surf, fund-raise, charge-cap, short--change
Motion verbs		frog-march, piggyback, railroad, shuttle-cock, cat-foot, pussy-foot, cliff-hang, couch-hop, cartwheel, nose-dive
Speaking verbs (including wider senses like persuasion and the like)	злословя, славословя, словоблудствам	small talk, fast-talk, sweet-talk, chin wag, backbite, foulmouth, badmouth
Supplying activities	електроснабдявам, водоснабдявам	

* The compounds in the corpus do not come from specialized lexicons and do not have terminological status. They come from general vocabulary and are used in everyday language.

The list of domains or word-formation types can be extended almost endlessly, but this would not lead to any significant changes in the status quo – English abounds in compound verbs in comparison to Bulgarian. The word-formation types in Eng-

lish cover virtually the whole span of human existence, while compound verbs in Bulgarian are restricted to a few types and are fully lexicalized. Compound verbs in English satisfy onomasiological needs in all kinds of conceptual fields and realize a fully productive constructional idiom, freely extendable via analogy. In Bulgarian, the fossilization of the construction indicates the almost virtual unproductivity of the construction and is suggestive of compound verbs constituting a relict.

Many CVs contain as first constituent a foregrounded element of the frame which an associated simplex verb profiles (e.g. *deep-fry*, *force-feed*, *sun-dry*, etc.). Contrary to expectations for pleonastic semantic effects, even such subclassification CVs are meaningful and informative, which requires that the foregrounded element be relevant, unexpected, unpredictable or *highly specific*. Kiefer's definition of argument relevance to the head in a compound best generalizes these requirements, "[a]n argument in a compound is said to be relevant with respect to the head if it is not predictable on the basis of the meaning of the head and world knowledge. It is also possible to define a scale of relevance: the more predictable an argument is with respect to a head the less relevant it is" [Kiefer 1993: 46].

This broad definition dependent on world knowledge is further refined by the postulation of "a scale of relevance on the basis of the range of possible arguments. The wider the range R of the arguments A_i admitted by the head H is, the more relevant an argument A_k out of R will be" [Kiefer 1993: 50]. Relevance is associated with and motivated by ontological salience[14].

In this way the range of foregrounded constituents in a CV appears to be regulated by system-external constraints, most probably stemming from general cognitive abilities. As [Kiefer 1993: 55] himself admits, "the selection of arguments in compounds is thus only in part a matter of grammar, it is to a large extent determined by extralinguistic considerations." Besides being recognized as heavily influencing compounds, system-external considerations have been pointed out as an indispensible analytical heuristic by [Bundgaard et al. 2006: 369] who insist that "any attempt to define a combinatorial rule in terms stemming exclusively from the linguistic system as such (*qua* a self-contained formal system) is doomed to fail." For this reason, it is advisable to look for the extralinguistic correlates that determine the combinatorial properties implicated in the creation and interpretation of CVs.

However, from the applied frame analyses it transpires that there are linguistic factors which also heavily influence the choice of frame components to be included

[14] "«[O]ntological salience,» is not related to temporary activation states of concepts but to more or less stable properties of entities in the world. The idea is that by virtue of their very nature, some entities are better qualified to attract our attention than others and are thus more salient in this sense" [Schmid 2007: 120].

in the morphotactic makeup of compound verbs. In English there are no restrictions as to the frame component that gets foregrounded within the compound – Instrument and Manner (obligatory) components are as frequent as Participant (Theme). In Bulgarian there is a marked preference for Theme foregrounding. This restriction stems from the fact that noun incorporation is the sole source of compound verbs in Bulgarian, while in English compounding, back-formation, conversion and noun incorporation (which enters into relations of intersective gradience with the remaining three processes – see [Aarts 2008] for an elaboration of the concept of intersective gradience) all produce genuine compound verbs.

The argument relations actualized in synthetic compounds belong to 'morpholexical operations', in which besides the syntax-morphology interface a close interaction with semantics is involved, as there usually ensues a semantic alternation [see Levin, Hovav 2001]. The semantic/thematic roles are ordered in hierarchies an example of which is the one offered by Bresnan and Kanerva [Bresnan, Kanerva 1989; quoted after Sadler, Spencer 2001: 5], "Agent < Benefactive < Goal/Experiencer < Instrumental < Patient/ Theme < Locative…". Such preference hierarchies (based on pragmatic predictability) order the likelihood of morphosytnatic realization of arguments. The hierarchy might explain clausal patterns, but it is highly unlikely to capture any generalizations about CVs. On the basis of analysis of the corpus, we postulate instead the following hierarchy Manner < Instrumental < Patient/ Theme < Locative for English, even though we claim that such relations are not crucial for the semantic interpretation of compound verbs as the configured semantics most frequently results in a manner predicate or a novel conceptualization. Sadler and Spencer summarise the prevalent arguments for synthetic compounds in the following way, "the incorporated element discharges an argument position, but **not in the same way as a syntactic direct object**" [Sadler, Spencer 2001: 21; emphasis added].

In Bulgarian the rule of subclassification (motivated by noun incorporation) is stronger and the argument hierarchy is restricted to Patient/ Theme < Target. Novel conceptualizations are rare and the manner interpretation is virtually non-present. Instead, compound verbs more fully correspond to clausal encodings of the same conceptual content.

Simply put it is not the standard syntax of a language that regulates the internal morphotactic constituency and semantic configuring of a compound verb. Rather the principles of conceptual fusion and relevance-motivated possible combinations license the construction and semantic patterning of compound verbs. Furthermore, it is not plausible to assume that the three word-formation processes (conversion, back-derivation and composition) yield the same type of product, i.e. compound verbs, and all three converge towards the same implications for semantic configuring.

The derived verbal lexicon in English is rather poor in terms of productive patterns (*-ize, -ify, -en* being the only verbalzing suffixes), while in Bulgarian the derived verbal lexicon is richer than the compound one. This asymmetry between the two languages is indicative of the discrepancy between the semantic organizations of the lexicon in the two linguistic systems. This consistent difference might be linked to the fact that English speakers tend to encode manner of motion in their verbs [Talmy 1985, 2000; Slobin 1996], while the rich Bulgarian prefixal system predetermines speakers' preferences for encoding path or ground. Path is naturally encoded by lexical items with spatial meanings, i.e. prepositions, which are most likely to develop into bound morphemes in the natural spiral of grammaticalization.

On the basis of the contrastive frame analyses, it could be concluded that in both English and Bulgarian compound verbs:

i) constitute construction schemas that represent semantic niches[15];
ii) follow identifiable analogical patterns of word-formation (with different potency ratings in the two languages), thus establishing the word-formation niches. The families are generated on the principle of construction schema extensions with an increasing degree of schematicity and elaborated actively with new members to the niche's family;
iii) are never fully compositional.

Basic divergences can be established in the analogical potential of sanctioned schemas in the two languages, with both manner and instrument incorporation in CVs being consistently disfavored in Bulgarian.

Another notable difference between the two languages is the full productivity of the [сам-о-V се] pattern in Bulgarian which is likely to tolerate any transitive verb in the language (given the appropriate context). It could even be claimed that this pattern has reached a level of productivity characteristic of fully grammatical models and constructions. The [self-V] construction has produced far fewer types in English and doesn't seem to be actively used as an analogical matrix. As the reasons for this cannot be conceptual (after all egocentricity is recognized as a central structuring principle of language cf. [Dirven and Verspoor 2004]), a structuring explanation is most likely to underlie the contrast, which is beyond the scope of the present research.

[15] Note that construction schema and word-formation niche are not co-terminous even though they intersect in intricate ways. A niche is narrower than a construction schema, since it has at least one of the constituents of the compounds lexically specified. [MANNER ACTIVITY] is a generalized schema based on semantic components, while a niche is more specific and contains an identified formal constituent [MANNER TALK].

4. A preliminary conclusion

To recap, despite the similarities in the underlying cognitive principles, the construction schemas associated with CVs in the two languages display some pronounced contrasts indicative of the flexibility of the English part-of-speech system and the extremely relaxed reign of system-internal iconicity in word--formation. The abundance of compound verbs in English is also related to the powerful role of word-formation paradigms, which is not counterbalanced or rather checked by a similarly strong one of inflectional paradigms.

The fact that conversion or syntactic promiscuity characterizes the English language facilitates the easier elaboration of word-formation paradigms. (Para) synthetic nominals with the most productive and transparent suffixes easily yield all other members of a paradigm via regular subtraction or substitution (and conversion in English) and this leads to the creation of numerous compound verbs, the creation of which is blocked in Bulgarian by inflectional marking associated with well-delineated part-of-speech divisions.

Taking the liberty of making a generalization in the spirit of Natural Morphology, Bulgarian displays a higher degree of iconicity in its word-formation system. Iconicty in this understanding is measured in terms of preferences for maintaining the biuniquenss of the sign by providing the most natural (cognitively simple, marked in a one-to-one relationship between meaning and form, easily accessible, and universally preferred) correspondence between expression and meaning. In this sense the explicit affixal marking of different onomasiological types in Bulgarian word-formation accounts for the marked degree of iconicity (*чист**Ø** – чист**я** – чист**ач** – чист**ачка** – чист**ота*** vs. *clean*$_{(n)}$ – *clean*$_{(v)}$ – *clean*$_{(adj)}$ *clean*$_{(adv)}$ – *cleaning*$_{(v)}$ – *cleaning*$_{(n)}$ – *cleaning*$_{(adj)}$ – *cleaner*$_{(n)}$). The lists of members of word-formation paradigms presented here are not ordered and do not reveal the chain of derivations which would ideally constitute a derivational hierarchy. Yet, the mere fact that one and the same expression side (*clean*) can perform five different morphosyntactic roles without any change in form and the necessity to expressly indicate out of context the part-of-speech membership of each lexical item in English is telling enough of the disrupted iconicity in an English word-formation paradigm. The same kind of paradigmatic relations and their markedness obtain in the compound lexicon (e.g. *гласопода**ва**м – гласопода**ва**тел – гласопода**ва**не – гласопода**ва**щ* vs. *bear hug*$_{(n)}$ – *bear hug*$_{(v)}$ – *bear hugging*$_{(v)}$ – *bear hugging*$_{(n)}$ – *bear hugging*$_{(adj)}$) so the role of word-formation paradigms is not different in any way in the affixally derived and the compound lexicon. The strong iconicity maintained in Bulgarian word-formation paradigms is taken to account for the blocking of deriving freely without any changes verbs from both (para)synthetic

and root nominal compounds. This iconicity is strongly correlated with the nature of the part-of-speech system in the two languages, though we are not at present in a position to formulate a cause-effect relationship between the two.

5. How it all ties in together and where to from here

As mentioned above, the major contrasts to be found between English and Bulgarian in relation to compound lexical objects lie in the verbal lexicon. Creating compound verbs is characteristic of Modern English, while compound verbs in Bulgarian seem to be inherited from an earlier stage of the language. In Bulgarian compound verbs there is a marked preference for packaging Participants and Themes but Circumstances and Instruments are strongly disfavoured. No such restrictions hold in the types of intra-frame relations inherent in the semantic configuring of compound verbs in English.

Language-internally, a major contrast between the verbal and the nominal domains in Bulgarian can be detected in the permissibility of a variety of frame--internal relations in compound nouns and the stricter restriction to Participants (in the wider sense of the concept) in verb compounds. The emergence of many new composite substantives without a linking vowel between the two components in Bulgarian is a sign that the language is developing towards more pronounced analyticity [Аврамова, Осенова 2003: 73] but this tendency concerns mainly the nominal system [Вачкова, Вачков 1998: 100]. This could explain why the set of (para)synthetic nominal compounds in the two languages are comparable. At the same time, English verbal compounds have freed themselves from the strong grip of syntax (as far as their constituency is concerned), while in Bulgarian syntax can exert some influence on word formation, the intermediary of which is the heavy inflectional morphology associated with the well-demarcated and rigid part of speech system.

Closely linked to this powerful influence of part of speech demarcation is the tendency towards maintaining iconicity in word-formation. Iconicity maintenance is characteristic of Bulgarian, but not of English. Metaphtonymy is exploited as one of the means for maintaining iconicity and appears in both (para)synthetic compound nouns and compound verbs in Bulgarian. Metaphthonymy in semantic configuring predominates in compound verbs in both languages. In any of the types we can find metaphthonymic examples (e.g. *brow beat*, *frog march*, *chin wag*, *ръкополагам*, *главозамайвам се*, *самозабравям се*, etc.), while only the metonymic attribute type is characterized with consistent involvement of the two conceptual mechanisms in the semantic

configuring of verb-nexus substantive compounds. This fact alone is worth exploring in depth but it would take more than a monograph and we reserve the right to take this venue of research in the future.

On the whole, the bulk of descriptive-analytical contrastive study of verb--based compounds in English and Bulgarian has been accomplished but the more demanding part, to answer the question why things are the way they are, is the prospect for our immediate future research. The ultimate goal of our future works will be to establish the nature of the relationship between iconicity and part-of-speech systems and their interaction with compound lexical objects.

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Appendix one: Sources for the self-compiled corpora

I. For the compound nouns corpus

English Dictionaries

Merriam-Webster Online Dictionary (MWOD) – www.merriam-webster.com
MSN Encarta Dictionary – www.encarta.msn.com/dictionary
Online Etymology Dictionary (OED) – www.etymonline.com
Online English Dictionary – www.dictionary.reference.com
Dictionary, Encyclopedia and Thesaurus – The Free Dictionary – www.thefreedictionary.com
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Sources of the excerpted items

Reader's Digest; The Daily Telegraph; The Sofia Echo; The Wall Street Journal Europe; The BBC; www.wordspy.com; OALDCE; LDCE; COED; CODCE; вестник „Аз Жената"; Седмичен Труд; Стандарт; списание „Анна"; Журнал за Жената; РНДЗБЕ; РСПРП за 21 век; статията на Иванова, К., 1993 – „*Един тип сложни съществителни имена*"; дипломната работа на Бойчинова, Е., 1970 – „*Сложни съществителни с първи компонент глаголна форма в повелително наклонение*"; personal corpus.

II. For the compound verbs corpus

Corpora:

BNC: British National Corpus at: http://www.natcorp.ox.ac.uk/. BNC Webmaster (bnc-queries@rt.oucs.ox.ac.uk) 2009-01-26. OUCS. © *2010, University of Oxford*.

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The Practice

Semantic packaging in verb-based compounds in English and Bulgarian

Summary

The article contrasts the word-formation types of (para)synthetic compound nouns and compound verbs in two genetically distantly related but typologically distinct languages Bulgarian and English. While the nature of synthetic compound nouns in both languages is comparable, compound verbs show greater contrasts in terms of types, restrictions and preferences for intra-compound relations and semantic diversity. An explanation is sought in terms of the influence of word-relevant syntactic properties on word-formation phenomena in the two languages. An additional powerful factor is the ubiquity of conversion or syntactic promiscuity in English. A hypothesis is formulated that in Bulgarian the iconicity of word-formation processes and products associated with the biuniqueness of the sign as understood by Natural Morphology accounts for restrictions on the absolute reign of word-formation paradigms in Bulgarian, where the distinction between inflectional morphology and word-formation

is more sharply delineated. The typological character of the two languages is ultimately taken into account as a factor which determines the preferences for compounds in English and the prevalence of affixal derivation in Bulgarian.

Keywords: semantic packaging; verb-based compounds; English and Bulgarian

Kompresja semantyczna w złożeniach czasownikowych w językach bułgarskim i angielskim

Streszczenie

Autorzy artykułu dokonali porównania mechanizmów słowotwórczych wykorzystywanych przy derywacji (para)syntetycznych złożeń rzeczownikowych oraz czasownikowych w językach bułgarskim i angielskim. Badane języki wykazują dalekie pokrewieństwo genetyczne, lecz z typologicznego punktu widzenia są one od siebie różne. W odróżnieniu od mechanizmów tworzenia syntetycznych złożeń rzeczownikowych, które w obu językach są podobne, złożenia czasownikowe różnią się, jeżeli chodzi o ich typy, ograniczenia użycia oraz preferencje odnośnie relacji zawartych w określonych złożeniach, jak również różnorodność semantyczną. Omawiane zjawiska są prawdopodobnie warunkowane tym, jak cechy składniowe danego języka wpływają na jego mechanizmy słowotwórcze. Kolejnym istotnym czynnikiem, kształtującym naturę tych mechanizmów w języku angielskim, jest konwersja semantyczna. W języku bułgarskim podział na morfemy słowotwórcze i fleksyjne jest dużo bardziej wyrazisty niż w języku angielskim. Autorzy stawiają hipotezę, że przyczyny tego zjawiska należy upatrywać w dwóch czynnikach: ikoniczności bułgarskich procesów słowotwórczych oraz bijekcji znaku (w rozumieniu morfologii naturalnej). W ostatecznym rozrachunku wydaje się, że to cechy typologiczne wpływają na to, że język angielski wykazuje wyraźną skłonność do tworzenia złożeń wyrazowych, zaś w języku bułgarskim dominuje zjawisko afiksacji derywacyjnej.

Słowa kluczowe: kompresja semantyczna; złożenia odczasownikowe; język angielski i bułgarski