

COMPOUND VERBS AND (PARA)SYNTHETIC ADJECTIVES IN ENGLISH. STRUCTURE AND SEMANTICS¹

Georgi Georgiev

University of Sofia St. Kliment Ohridski

Настоящият доклад разглежда привидната лексикална обвързаност между сложните NV глаголи и (пара)синтетичните прилагателни в английския език, като се достига до извода, че тази обвързаност не се потвърждава от словообразователни данни. Еднозначно се разглежда въпросът за ненужното разграничение между синтеза и парасинтеза. Семантиката на (пара)синтетичните прилагателни се разбира като резултат от заемането на концептуални рамки от реализирани изреченски или идиоматични структури. Идентифицирани са синтактични и лексикални условия, които благоприятстват деривацията на (пара)синтетични прилагателни. Накрая докладът описва новоразработена база данни за справка относно ключови характеристики на английските (пара)синтетични прилагателни.

Ключови думи: сложни глаголи, (пара)синтеза, прилагателни, структура, семантика, когнитивна граматика, формална граматика, словообразуване.

This paper explores the supposed lexical relatedness between NV compound verbs and (para)synthetic adjectives in English, suggesting that said relatedness is not supported by word-formative data. A uniform treatment is discussed that does away with the synthesis – parasyntesis distinction. In addition, the semantics of (para)synthetic adjectives is said to result from the borrowing of frames from actualised clause patterns and idiomatic structures. Syntactic and lexical conditions that favour the production of (para)synthetic adjectives are identified. The paper also describes a newly developed reference database, which provides data on a number of features associated with English (para)synthetic adjectives.

Keywords: compound verbs, (para)synthesis, adjectives, structure, semantics, cognitive grammar, formal grammar, word-formation.

¹ This paper has been greatly improved thanks to the input of Alexandra Bagasheva, and a reviewer. I thank my family for being ever so patient with me.

1. Introduction²

Accounts of (para)synthetic compounds structurally and semantically similar to *mind-boggling* are attested in the literature, yet they appear to be significantly fewer than those focusing on compound verbs (henceforth, CVs). While studies relating to the structure of the latter have been cast in the Government and Binding framework (Baker 1988 and 1996), as well as X-Bar (Ackema & Neeleman 2004), the structure of the former has been a problematic area (Melloni and Bisetto 2010). Similarly, there is, to our knowledge, no text specifically targeting the semantics of (para)synthetic adjectives, while constructional approaches (Booij 2009) and frame semantics have been profitably used to explore the semantics of CVs.

This paper aims to step on what is generally known about CVs to generalise about English adjectival NV (para)synthetic compounds of the type of *mind-boggling*. To this end, we employ a productive blend of formal and cognitive approaches. We expect to arrive at a working understanding of the multifactorial nature of the structure and the semantics of the adjectives in question, thereby justifying the compiling of a reference database for their further study.

The remaining text is structured as follows. In part 2, we carry out a brief examination of the structural properties of English (para)synthetic adjectives and CVs. Part 3 covers some issues concerning the semantics of CVs. We argue that borrowing of conceptual frames does not generally occur between CVs and their supposed derivatives, which is what makes the semantics of adjectives like *mind-boggling* intriguing in the first place. In part 4, we discuss a database that can be used for investigating (para)synthetic adjectives. Part 5 wraps up the discussion, drawing relevant conclusions.

2. The structure of some (para)synthetic adjectives

English CVs have resulted from different word-formative processes: incorporation (*spoon-feed*), back-formation (*babysit*), conversion (*bear hug*), and what Bagasheva (2014: 4) calls compounding proper (*kick-start*). Similarly, (para)synthetic adjectives are not a uniform group. Melloni and Bisetto (2010: 199-200) assert that adjectival parasynthesis has to be discussed in terms of a missing compound lying at the centre of the process. Thus, we do not find a verb

² A reviewer suggests replacing (*пара*)*синтеза* with (*пара*)*синтетичност*. We respectfully disagree, noting that (*пара*)*синтетичност* corresponds to a use of the term (*пара*)*synthesis* congruent with Baker (1988), who views (para)synthesis as a property of specific languages. Here, we do not make such a claim, and instead explore the word-formation process under the same term in English.

heart-warm that corresponds to *heart-warming*. Moreover, under most current frameworks the ternary complex formed is not amenable to a straightforward constituent analysis. The same, however, does not go for synthetic compounds, which are readily analysable as [[Stem 1 + Stem 2] + Suf_{Adj}]. Ackema and Neeleman (2004) find an elegant way out which has the added benefit of doing away with the synthesis – parasynthesis distinction. In their framework, the morphological subcomponent merges the N and the V nodes only when they are ‘[e]mbedded under a category-changing affix’ (Melloni and Bisetto 2010: 203)³. The actual existence of a CV, thus, is no longer a requirement for the derivation of the adjective.

The aforementioned analysis, which follows Ackema and Neeleman (2004; 2010), has two significant implications relevant to our discussion. We only sketch those out here, noting that they should be taken with a pinch of salt. Firstly, the pattern of composition presented seems to go against approaches advocating the acategoriality of the constituents of CVs and – by extension – of (para)synthetic adjectives, namely Bagasheva (2011) and distributed morphology accounts (Harley (2009) extends acategoriality to all compounds). However, we should be aware that Ackema and Neeleman (2004) posit a morphological subcomponent which is subject to many of the rules of the core syntactic component. The same is not true of the other analyses just mentioned. Indeed, Bagasheva (2011) has both a morphological and a syntactic component, while Harley (2009) denies many of the principles of phrasal syntax access to morphology. Thus, the framework of Ackema and Neeleman (2004; 2010) does not actually cancel out the other two. Cross-linguistic evidence is scarce, however, for us to discuss acategoriality in proper detail⁴ and doing so would be beyond the scope of the present text.

Secondly, the analysis proposed does away with the supposed word-formative relationships between some English CVs and (para)synthetic adjective counterparts. This results in a weakening of the degree of lexical relatedness between the two groups of compounds. In effect, the model of Ackema and Neeleman (2004; 2010) does not accommodate NV CVs resulting from incorporation, stating the rule for forming the adjectives in absolute terms.

However, sporadic as it is, incorporation does occur in English (e.g. *spoon-feed*). It is conceivable for a noun *spoon-feeding* to be derived, but an adjectival interpretation of *spoon-*

³ Ackema and Neeleman (2004)’s claim is in fact much stronger. Not only does it apply to all (para)synthetic compounds, but it also reflects a possibility for morphology to break the No Phrase Constraint, thereby allowing merger with a phrasal category under the category-changing affix (Ackema and Neeleman 2010: 28).

⁴ Yet see Jacques (2012) and references therein. Bagasheva (2011:135) is cautious about proposing acategoriality, doing so for English CVs only.

feeding seems improbable⁵. Our examination of the English NV CVs in Appendix One of Bagasheva (2012) suggests that comparable lexemes similarly lack corresponding adjectives, and corresponding nouns are quite rare. This stands in stark contrast to the proliferation of adjectives with no corresponding CVs. Such adjectives do not lend themselves easily to a nominal interpretation. The asymmetries above appear to be systematic, and qualitative data confirm this initial observation (cf. the discussion on the adjectival (para)synthesis reference database). In light of this, we propose that the adjective-forming rule of Ackema and Neeleman (2004; 2010) generally operates when it is not lexically blocked by the existence of an NV CV. This has the added benefit of recognising the marginal status of incorporation⁶ in English, and is supported by the greater number of (para)synthetic adjectives as opposed to that of NV CVs found in Bagasheva (2012)'s appendix.

Thus, there appears to be mismatch between the word-formation processes and the supposed inheritance of derivational and lexical meaning⁷ (Bagasheva, Stamenov and Kolarova 2013: 206). This is a welcome result because – as we will shortly see – inheritance is not the norm when the semantics of (para)synthetic adjectives is compared with that of CVs.

3. The semantics of some (para)synthetic adjectives

The semantics of compounds has been studied the most extensively within the framework of cognitive linguistics. Heyvaert (2009: 243) contends that '[C]ognitive Linguistics situates the creation of new compounds (or the extension of existing compound schemata) in the language user rather than in the language system.' This distinction is indeed of importance, but it should be borne in mind that milder views exist in the literature. Thus, we side with Bagasheva (2014:3-4), who sees linguistic motivation as secondary for English CVs, but still attaches great significance to it in her analysis. Following a similar line of thought, Mithun (1984) discusses four stages of the development of incorporating structures. The two treatments differ in that Mithun (1984) lays emphasis on functional considerations, while Bagasheva (2014) focuses on the importance of key cognitive faculties.

⁵ A COCA search for *spoon-feeding* returned 25 hits (22 featuring a progressive VP, and 3 – a nominal interpretation). The BNC returned no hits.

⁶ Other processes producing NV CVs are more common, but the existence of an NV CV still blocks the production of adjectives in most cases.

⁷ In our case, the adjectival semantic configuration is supposed to be derived from a verbal one.

Studies reported in Gagné (2009: 264) suggest that compounds are processed both as gestalts and in terms of their constituents if the compounds themselves are not wholly opaque. Hence, '[c]ompounds are represented as morphologically complex at some level of representation' (Gagné 2009: 265). This means that our choice of discussing the structure of CVs and (para)synthetic adjectives before their semantics will prove to be a profitable one.

Spencer (2013) argues that lexical relatedness transcends the morphotactics of lexemes to encompass all of their properties. Determining the extent of the relatedness between lexemes, thus, involves establishing which their 'relevant properties' are (Spencer 2013: 55). In the previous section, it was observed that, while seeming to derive from NV CVs, our (para)synthetic adjectives were in fact blocked by them. Word-formation parallels were not corroborated by our data, but structural ones were in evidence.

With structural parallels in place, we have to look for semantic similarities. From the perspective of frame semantics, a compound necessarily has to constitute a coherent frame. Conceptual frames can be borrowed (Fillmore 2006: 387) between structurally similar, often word-formatively related, lexemes. Frame borrowing proceeds by virtue of analogy in the case of *spoon-feed* and *spoon-feeding* (n.), where the latter has historically borrowed the frame of the former. Modifications have necessarily taken place. The profile has remained the same, but the background differs slightly due to the change of category. Comparable changes in background are evident on examination of other NV CVs and their corresponding nouns. Such small-scale background modifications are typical of word-formation paradigms, and constitute one end of a cline of schematicity which opposes analogy-based word-formation to rule-based word-formation (Booij 2010: 106).

In part 2, our (para)synthetic adjectives were discussed from a rule-based perspective, so, strictly speaking, it will be improbable for them to employ the type of frame borrowing just discussed. Yet, if the term is interpreted more liberally (to refer to the borrowing and manipulation of frames from actualised clause patterns), it may well be applied to the mechanism operating on them. Event schemas are the type of frame associated with CVs, but they are most often encoded in clausal patterns (Bagasheva 2012: 67). There is a difference between the frame of a lexeme⁸ and that of a clause pattern. In general, the latter is not subject to the Conventional Frame constraint (Goldberg n.d.: 11), which states that '[t]he situation or

⁸ Goldberg (n.d.) discusses verbs, but her observations are applicable to any lexeme.

experience [should] evoke a cultural unit that is familiar and relevant to those who use the word'. Thus, ontological and cognitive salience, which are necessary for a lexeme to exist, come about as a result of the relativisation of situational salience. (Para)synthetic adjectives and CVs, moreover, have both relational and situational properties. When a situationally salient element of an actualised clause pattern frame is onomatologically specified to produce a CV, it is necessarily profiled in the CV frame (Bagasheva 2014: 7). With (para)synthetic adjectives like *mind-boggling*, the relativisation is towards the particular adjectival concept encoded by their suffix, and the frame necessarily has to include an underspecified bearer of a quality.

The mechanism above requires some elaboration. We might be tempted to infer from the foregoing discussion that frame borrowing with CVs and (para)synthetic adjectives in the broad sense involves a one-step conventionalisation of a situation or experience encoded in an actualised clause pattern. However, the input of lexemes interacts with that of the abstract clause pattern, so any such borrowing is in fact very selective. More often than not, it is the predicator verb that is backgrounded, because it is situationally less salient than its internal arguments. This demonstrates the significance of the underlying clause pattern to the selection of profile and background for the resulting frame. Mithun (1984)'s implicational hierarchy provides an understanding of which arguments are more likely than others to be profiled.

As already mentioned, it is very probable that the selection of profile and background is affected by lexical considerations. The collocability of the lexemes in the actualised clausal pattern is a good indicator of the likelihood of a CV or a (para)synthetic adjective being produced. Collocational preferences reflect the degree of conventionalisation of a frame, and if they obtain between lexical items, this tends to favour the production of a CV or a (para)synthetic adjective. The observed trend has not been investigated in full. Data from the adjectival (para)synthesis reference database show a significantly greater number of (para)synthetic adjectives like *heart-breaking*, which have a corresponding collocating pair (i.e. *to break sb's heart*), than that of adjectives like *man-eating*, which lack such a pair. Collocability presupposes a degree of idiomaticity, so it is evident that many NV (para)synthetic adjectives display frames that are not typically found with CVs, which – it has been suggested – have a certain set of interrelated frame domains (Bagasheva, Stamenov and Kolarova 2013: 210-211).

4. The Adjectival (Para)synthesis Reference Database

The above observations clearly illustrate the need for a qualitative database to investigate English (para)synthetic adjectives of the type of *heart-breaking* and *mind-boggling*. In our view, this is the only way to ensure the establishment of an adequate taxonomy of (para)synthetic adjectives. Although it is beyond the scope of the present text to argue in detail the procedures involved in compiling such a database, we outline those here. Our adjectival (para)synthesis reference database was created in early 2016 with funding from the Professor Andrey Danchev Memorial Grant.

By necessity, the database was compiled manually. Semantic tagging is crude at best when it comes to compounds, and this is especially the case here since our adjectives do not fit neatly into the semantic groups established for CVs. Hence, the aim has been to spell out frame domains instead in the hopes that this will facilitate comparison between the two groups of compounds.

The static database features the 340 most frequent (para)synthetic adjectives (based on token frequency ratings in COCA). Hence, a cut-off point of 30 tokens is taken as the lowest-productivity benchmark permissible. The entries follow a one-to-many annotation principle with each entry being annotated for six types of data (each type presented as a separate column in the database). The data are as follows: semantic role of the N element of the adjective, syntactic role of the N element of the adjective, corresponding CV present, corresponding collocation and/or idiom present, frame domain of the adjective, and token frequency of the adjective in COCA.

The semantic roles of the N element of a (para)synthetic adjective are the following: Affected Agent, Circumstance, Effected, Goal, Instrument, Path, Patient, Phenomenon, Possessed, Range, Source, Theme, Verbiage. Where two readings are possible, the first one indicated is more likely than the second one. These are roughly mapped onto the syntactic roles the N element may assume: Adjunct (often, part of a larger phrase), Direct Object, Subject. For instance, it is expected that the Affected Agent will have an almost 1:1 relationship with the Subject, which is indeed supported by our data.

As discussed above, very few (para)synthetic adjectives have corresponding CVs: in our sample, the number of these is eighteen. In contrast, the overwhelming majority of (para)synthetic adjectives have a corresponding collocation and/or idiom, which goes in support of the stance articulated above.

The layer of frame domains is expectedly that with the most diversity. The domains are specified in the form of *-ing* clauses to correspond to the attributive properties of the majority of our adjectives. The generality of the domains is meant to be optimal for both contrastive purposes (for prospective investigations into the nature of (para)synthetic adjectives in other languages), and for the comparison between the frames of CVs and (para)synthetic adjectives in English. This makes the database well suited to the purposes of compounding scholars, regardless of whether they share the views expressed in the previous sections of this paper.

The labels for frame domains are numbered for reasons of space, and make reference to X, which is the entity denoted by the N element of a (para)synthetic adjective. A number is not meant to serve as a frequency indicator of the domain it stands for. The domains are as follows: 0 – removing or subtracting X, 1 – obtaining and continuing to hold (X), 2 – endangering or worsening the state of X, 3 – augmenting or bettering the state of X, 4 – changing X from one state to another (without evaluative overtones), 5 – consuming X, 6 – creating or producing X (where X may be verbal, too), 7 – sensing or experiencing X, 8 – doing an activity along a specified trajectory (where X is part of said trajectory), 9 – doing an activity using X as an instrument/tool, 10 – doing an activity for (the purpose of) X, 11 – possessing, carrying or wearing X, 12 – doing an activity at a specified time (said time being X).

5. Conclusion

We discussed a possible way for analysing the structure of (para)synthetic adjectives that had the N and the V node merging only when embedded under a category-changing suffix. Thus, it became evident that, although structurally similar, English CVs and (para)synthetic adjectives are not word-formatively related. In fact, the former clearly block the appearance of the latter, and vice-versa. The postulated lexical blocking was found to be theoretically useful in that it recognised the marginal status of noun incorporation in English.

We viewed the semantics of CVs and (para)synthetic adjectives in terms of an onomasiological specification that relativises the situationally salient elements of a clause frame, transforming them into ontologically salient ones in the frame of a compound lexeme. This proved fruitful in that it allowed us to draw a distinction between the frame borrowing that takes place between CVs and their noun counterparts, and a more liberally defined borrowing of frames (by (NV) CVs and (para)synthetic adjectives alike) from actualised clause patterns. The profiling of elements in a compound's frame was related to syntactic and lexical conditions favouring the

production of CVs and (para)synthetic adjectives. We outlined the features of a recently developed reference database, which – we hope – will be useful for contrastive purposes, and for comparison between the frames of CVs and (para)synthetic adjectives in English.

Bibliography

- Ackema and Neeleman 2004*: Ackema, Peter and Ad Neeleman. *Beyond Morphology*. Oxford: Oxford University Press, 2004.
- Ackema and Neeleman 2010*: Ackema, Peter and Ad Neeleman. *The Role of Syntax and Morphology in Compounding*. — In: *Cross-Disciplinary Issues in Compounding*. eds. Irene Vogel and Sergio Scalise. Amsterdam: John Benjamins, 2010, 21-36.
- Bagasheva 2011*: Bagasheva, Alexandra. *Compound verbs in English Revisited*. — *Bucharest Working Papers in Linguistics*, 1/2011, 125-151.
- Bagasheva 2012*: Bagasheva, Alexandra. *Reflections on Compound Verbs and Compounding*. Sofia: Sofia University Press, 2012.
- Bagasheva 2014*: Bagasheva, Alexandra. *Frame Semantics, Metaphtonymy and Compound Verbs in English*. — In: *Selected Papers from the 4th UK Cognitive Linguistics Conference*. eds. Gabriella Rundblad, Agnieszka Tytus, Olivia Knapton and Chris Tang. London: UK Cognitive Linguistics Association, 2014, 1-17.
- Bagasheva, Stamenov and Kolarova 2013*: Bagasheva, Alexandra, Christo Stamenov and Maria Kolarova. *Semantic Packaging in Verb-based Compounds in English and Bulgarian*. — *Slavia Meridionalis*, 1/2013, 201-226.
- Baker 1988*: Baker, Mark C. *Incorporation. A Theory of Grammatical Function Changing*. Chicago: The University of Chicago Press, 1988.
- Baker 1996*: Baker, Mark C. *The Polysynthesis Parameter*. Oxford: Oxford University Press, 1996.
- Booij 2009*: Booij, Geert. *Compounding and Construction Morphology*. — In: *The Oxford Handbook of Compounding*. eds. Rochelle Lieber and Pavol Štekauer. Oxford: Oxford University Press, 2009, 201–216.
- Booij 2010*: Booij, Geert. *Compound Construction: Schemas or Analogy? A Construction Morphology Perspective*. — In: *Cross-Disciplinary Issues in Compounding* eds. Irene Vogel and Sergio Scalise. Amsterdam: John Benjamins, 2010, 93-107.
- Fillmore 2006*: Fillmore, Charles J. *Frame Semantics*. — In: *Cognitive Linguistics: Basic Readings*. ed. Dirk Geeraerts. Berlin: Mouton de Gruyter, 2006, 373-400.
- Gagné 2009*: Gagné, Christina L. *Psycholinguistic Perspectives*. — In: *The Oxford Handbook of Compounding*. eds. Rochelle Lieber and Pavol Štekauer. Oxford: Oxford University Press, 2009, 255-271.

- Goldberg n.d.*: Goldberg, Adele E. Verbs, Constructions and Semantic Frames (draft). — For: Syntax, Lexical Semantics and Event Structure. eds. M. Rappaport Hovav, E. Doron, and I. Sichel, n.d. [date of entering 07.01.2016] <http://www.princeton.edu/~adele/Publications_files/Frames6-16-08%20copy.pdf>.
- Heidi 2009*: Harley, Heidi. Compounding in Distributed Morphology. — In: The Oxford Handbook of Compounding. eds. Rochelle Lieber and Pavol Štekauer. Oxford: Oxford University Press, 2009, 129–144.
- Heyvaert 2009*: Heyvaert, Liesbet. Compounding in Cognitive Linguistics. — In: The Oxford Handbook of Compounding. eds. Rochelle Lieber and Pavol Štekauer. Oxford: Oxford University Press, 2009, 233-254.
- Jacques 2012*: Jacques, Guillaume. From Denominal Derivation to Incorporation. — *Lingua*, 11/2012, 1207-1231.
- Melloni and Bisetto 2010*: Melloni, Chiara and Antonietta Bisetto. Parasynthetic Compounds. — In: Cross-Disciplinary Issues in Compounding. eds. Irene Vogel and Sergio Scalise. Amsterdam: John Benjamins, 2010, 199-217.
- Mithun 1984*: Mithun, Marianne. The Evolution of Noun Incorporation. — *Language*, 4/1984, 847-894.
- Spencer 2013*: Spencer, Andrew. *Lexical Relatedness*. Oxford: Oxford University Press, 2013.
- The Adjectival (Para)synthesis Reference Database*: Georgiev, Georgi. The Adjectival (Para)synthesis Reference Database, 2016. Available on request.