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There's something about back-formation…

An overview of the interpretations of back-formation

Abstract

Back-formation is a process of English word-formation that due to its irregular nature both in terms of form and meaning, has yielded several possible interpretations from linguistic scholars, with regards to the way it operates on words that are non-affixed, yet interpreted by speakers as complex ones. The paper sets out to assemble the various views held on the way this mechanism of word creation may operate, i.e. the ones that consider it a rule-based and analogical process, along with the possibility of back-formation being the simultaneous operation of clipping and conversion. Another alternative under cognitive grammar is also offered, arguing that back-formation can be efficiently interpreted with the help of schema theory. Additionally, the use of back-formation is explored in corpus data as well, highlighting the genres in which words created via this process commonly occur.
Keywords: back-formation, analogy, word-formation rules, conversion, clipping, schema, corpus

1   Introduction

The term 'back-formation' (henceforth BF) was coined by J.A.H. Murray (cf. Fowler 1998: 85) on the basis of the German 'Rückbildung' to refer to the process defined by the *Oxford English Dictionary* (*OED*) as the "formation of what looks like a root-word from an already existing word which might be (but is not) a derivative of the former". The term 'back-derivation' is also present in the literature; however, Bauer (1993: 213) pointed out that such designation is incorrect, as demonstrated with the following examples, in which the alleged plural *-s* is truncated to yield singular forms: $pea_{Nsing.} \leftarrow pease_{Npl.}$, $cherry_{Nsing.} \leftarrow cerise_{Npl.}$, and $alm_{Nsing.} \leftarrow alms_{Npl.}$ (cf. Bauer 1993). Based on the available data, the most appropriate explanation for inflectional back-formation is folk etymology. According to Pinker (1999: 192), children of young age tend to back-form words such as '*mik*' ← *mix*; '*sentient*' ← *sentence*; and even '*Santa Claw*' ← *Santa Claus*, where the word-final [s] sound is mistaken for the plural and therefore deleted to form a singular noun. With regards to the properties of base words, Nagano (2007, 2008) observes that two types of BF must be distinguished, one of them being formed on the basis of a word having a single base, e.g. $york_V \leftarrow Yorker_N$, $google_V \leftarrow googly_N$, the other from a compound, e.g. $witch\text{-}hunt_V \leftarrow witch\text{-}hunting_{VBL.N.}$,

mirror-write$_V$ ← *mirror-writer*$_N$.[1] She also notes that among back-formed words, V←N/A is the most frequent pattern.

Additionally, a topic that cannot be ignored in connection with BF is whether it is a synchronic process, or it is only of diachronic importance. The most often cited statement commenting on the topic is that BF "has diachronic relevance only" (Marchland 1969: 39). However, this can be disproved on different grounds. It is true that for speakers of English it is not relevant which word was formed before, except if the particular word is a fairly new formation (e.g. *hotter*$_N$ (1991) ← *hotting*$_{VBL.N}$ (1991), *gobsmack*$_V$ (1987) ← *gobsmacked*$_A$ (1985)). Nevertheless, there are several views that challenge Marchand's (1960, 1969) stance on the exclusive diachronic relevance of back-formation. One of them, contrary to what Marchand (1960, 1969) claims, is that BF is a synchronically productive means of word-formation (Bauer 1993: 230). This is supported by the findings of Martsa (2012), who says that the formation of verbs from nouns and adjectives is an instantiation of the synchronic relevance of BF.

There have been numerous scholarly attempts to describe the underlying mechanisms regarding BF. There are two main trends researchers of BF have tended to subscribe to: one of them claims that BF is a rule-based process, whereas the other idea is that BF is analogy-driven. Linguists viewing BF as a rule-based process seem to belong to two groups, one of them consisting of those (e.g. Aronoff 1976, Adams 1987) who consider BF as the reversing of a word-formation rule (henceforth WFR). The other rule-governed interpretation comes from Haspelmath (2002) who claims that BF is not as unusual as it is often thought to be, for it is similar to affixation, only in this case an affix is not added but subtracted. Plag (2005), Katamba (2003) and Martsa (2011, 2012) define back-formation in terms of analogy; Marchand (1969: 309), whose work has provided a starting point for numerous observations on morphology also mentions a few back-formed word-pairs that may have been formed on the basis of analogy, e.g. *resurrect*$_V$ ← *resurrection*$_N$. Finally, an alternative interpretation by Nagano (2007, 2008) proposes that BF can be interpreted as the result of the joint operation of conversion and clipping. As it will be demonstrated, numerous interpretations of BF fail to account for the mechanism of the process because of the restrictions imposed on word-formation by the respective theories themselves. The present paper operates within the means of cognitive grammar (hereafter CG); therefore, an attempt is made to interpret BF within the enterprise of CG as proposed by Langacker (1987) and Taylor (2002). It is argued that the mechanism of BF and the apparent discrepancies between form and meaning in terms of BF can be accounted for with the CG framework, or more specifically, with the help of schemas. Moreover, the use of back-formed words in present-day language is also addressed by presenting corpus data on back-formed verbs, which is the most populous group of back-formed words in English, extracted from the online edition of the *Oxford English Dictionary* (*OED*).

The paper is organised as follows. Section 2 describes the views that consider BF as a rule governed process; firstly, the group of scholars who define BF as process that reverses rules, followed by those who claim that affixes are simply deleted by BF. Section 3 surveys the way BF is explained through analogy. Section 4 argues for the merging of rules and analogy and presents BF in terms of schemas. A corpus linguistic study on English verbs formed with BF is presented in Section 5. The sixth, and final, section provides a conclusion for the paper.

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[1] Štekauer (2000: 71) notes that Jespersen identified other attributes for BF; such an attribute is, for instance, that along with the subtraction of the end of a word, there are instances where the first part of the word is deleted, e.g. *atomy*$_N$ ← *an-atomy*$_N$, *plosive*$_N$ ← *explosive*.

2 Back-formation rules?

The present paper operates within the realm of CG; hence in line with Langacker (1987), the postulation of rules is not considered to be necessary. Nevertheless, a survey of the most common interpretations of BF from a rule-based perspective is offered to demonstrate that a rule of BF is difficult to subscribe to even within linguistic descriptions allowing for rules. Regardless of the linguistic approach we observe, there are rather different or even controversial interpretations of BF (Martsa 2011). A source of difficulty in describing BF may arise from the tendency that "concatenation is the preferred formal operation in both morphology and syntax" (Goldsmith 2009: 138). The following discussion draws on Martsa's (2011, 2012) account on how to approach the theories assigned to BF within various paradigms.

2.1 Reversing rules

In the corresponding literature, assumptions have been made in favour of considering BF rule-based. Two of these theories will be taken into consideration here: on one of them BF is the reversing of a particular WFR; on the other, BF, because of its similarity to suffixation, is a more 'ordinary' process than it is generally thought. As it will turn out, these theories can be challenged on different grounds.

The first position to discuss is "that backformation occurs when the formative process from base word to derived word is seen to be reversed" (Adams 1987: 105). A similar view is held by Aronoff (1976: 27) who makes the explicit claim that BF is the reversing of a WFR. Commenting on reversing rules, Nagano (2007: 41) notes that there are several instances of the subtraction of suffixes that are not productive anymore, e.g. *peeve*$_V$ ← *peevish*$_A$, *salve*$_V$ ← *salvage*$_N$. If it is assumed that once a rule becomes unproductive and as a result of this, words formed by it become lexicalized (cf. Bauer 1993: 49), this rule is not supposed to be available for regressive application, unless non-productive rules are also accessible for BF, which is not conceivable within the limits of a rule-based approach (Bauer 1993: 231–232). Nagano's (2007: 43) next remark concerns the accuracy of the idea of a reversing rule. This idea, so she argues, seems to ignore the categorial properties of the suffixes. The BF *stupend*$_V$ ← *stupendous*$_A$ is a case in point, since as Martsa (2011: 194) observes –*ous* is not applied for deriving adjectives from verbs.

Concerning the semantic change accompanying BF, Nagano's (2007: 44–45) objection to viewing BF as the reversing of a WFR is that in semiotic terms it creates 'anti-iconic' words. This means that the subtraction of an element of a word would have to be accompanied by the subtraction of semantic content as well, but it does not happen (Martsa 2011: 195). By way of illustration, *vacuum-clean*$_V$ does imply the meaning of *vacuum-cleaner*$_N$, as it can be paraphrased as 'cleaning with a vacuum-cleaner'.

In sum, the analyses of BF as a process that can reverse WFRs appears to be problematic from several perspectives, namely that it would need to have access to unproductive rules and BF would have to have the capability of overwriting existing WFRs.

2.2 Throwing affixes away?

Nagano's (2007: 45) other observation concerning the theory of BF being a rule-based process rests on Haspelmath's (2002: 168) argumentation. Haspelmath points out that BF is not as complicated as it is generally thought, and words like *burgle*$_V$, *peddle*$_V$ and *sculpt*$_V$ are

simply formed irregularly, i.e. "the new lexeme was formed by simultaneous subtraction of form (the suffix /-ər/) and meaning ('agent noun')", only this formation happens in the less productive direction. This definition raises several problems, one of them being that it ignores the anti-iconic nature of BF, i.e. that the back-formed word involves the agentive meaning of its base. Therefore, the meaning of *burgle*$_V$, Marchand (1969: 393) notes, can only be described as 'act as a burglar'.

Another interpretation of BF as a kind of affixation, in fact an 'anti-affixation', is based on the use of a bi-directional rule suggested by Haspelmath (2002: 169) within the framework of word-based morphology, in which, as Nagano (2007: 45) explains complex words (cf. *singer*, *walker*, *speaker*, etc.) and simple words (cf. *sing*, *walk*, *speak*, etc.) are both listed in the lexicon with their categorial specifications. The fact that these two sets of words are related formally and semantically can be captured by the so-called bi-directional morphological correspondence rule (Nagano 2007: 45). This is illustrated in Figure 1, where the schematic correspondence between word pairs such as *sing*/*singer*, *walk*/*walker*, *speak*/*speaker* is described (cf. Nagano 2007:45):

$$\begin{pmatrix} <X> \\ V \\ 'X' \end{pmatrix} \leftrightarrow \begin{pmatrix} <Xer> \\ N \\ 'one\,who\,Xs' \end{pmatrix}$$

Figure 1. Bi-directional morphological correspondence rule (Nagano 2007: 45)

If a new word arises fitting the left-hand side of the schema, it may happen that in accordance with the rule illustrated by the figure, a word matching the right-hand side, also arises (e.g. *fax*$_V$→**faxer*$_N$; Nagano 2007: 46). The assumption can be made that BF also operates according the schema described in Figure 1 with the proviso that only in the other direction, i.e. from right to left and vice versa as in the case of *fax*$_V$→**faxer*$_N$. This is possible, because the schema in Figure 1 allows for processes in both directions. Moreover, according to Nagano (2007: 48) this interpretation makes it easier to comprehend the semantics of BF, because it "describes a symmetric relation between two classes of forms". Bi-directionality helps to account for those back-formed words that are formed by the subtraction of a now unproductive suffix, as in a word-based approach, productivity as such is not an issue. What is important in bi-directionality is the possibility of postulating binary sets of words serving as schemas for further formations. Given the advantages of such schemas, it must be noted that the problem of observing categorial properties of suffixes and the problem of deleted, though in effect non-existent, suffixes are not resolved. By way of illustration, Nagano (2008: 177) cites *liaison*$_N$ and its back-formed counterpart, which she claims to be problematic because *on* cannot be considered as a suffix to which a regular pattern of verbs and nouns belongs.

2.3   Conversion + clipping = back-formation?

Drawing on Marchand (1960, 1969), Nagano (2007, 2008) suggests that BF may be interpreted as a combination of conversion and clipping. Nagano (2008) grasps the idea of conversion (e.g. *beggar*$_N$→$_V$, Martsa 2013: 135) as 'relisting' lexical items. BF in her view is considered as a 'formal adjustment' that is triggered by morphosyntax. The argument is based on Marchand's (1960) account on conversion and BF. While Nagano (2008) refutes the idea

of a 'zero-morpheme' proposed by Marchand (1960), she adopts that in semantic terms, BF and conversion are identical. To support this hypothesis, Nagano (2008: 183) assembles a list of words undergoing conversion or BF that she categorises in the same semantic groups, e.g. *cash*$_V$ and *jell*$_V$ both belong to 'Goal'. In this vein, Nagano (2008: 185) declares BF as a 'subtype' of conversion.

Furthermore, Nagano (2008) claims that BF considered as conversion and formal re-adjustment can account for problems the models of BF as reversing rules and affix-deletion meant. One of these is that under Nagano's (2008) hypothesis, there is no need for a BF-model as in this interpretation the category change is caused by relisting as opposed to deleting an affix; hence, examples that were not satisfactory because of non-productive WFRs, the ignorance of categorial selectional features or the truncation of non-affixal segments are possible to account for as category-expression is the primary drive behind the deletion of certain elements of words (Nagano 2008: 186–187). For example, Nagano (2008) argues that phonology can play a role in the selection of truncated elements as *bolsh*$_V$, back-formed from *Bolshevik*$_N$ sounds more similar to verbs. Moreover, Nagano (2008) claims that the anti-iconicity of BF is also resolved, as under this explanation of BF, it is non-iconic as conversion and the truncation of elements is solely a formal operation, having no effect on the semantics of words. Nagano (2008: 189–215) lists several similarities that she believes connect BF and conversion, such as the above-mentioned semantic parallelism.

However, Martsa (2011, 2012) finds Nagano's (2007) initial suggestion, namely that BF results from the joint operation of conversion and clipping not feasible, as he regards conversion as a rule-governed, and clipping a non-rule-governed process that cannot function in parallel from a methodological perspective. Although Nagano (2008) refers to the truncation of certain elements (e.g. the aforementioned *–on*) in back-formed words as a formal adjustment that eliminates clipping as a process one needs to account for, to operate as an identical process to BF, conversion would need to be non-rule-governed (Nagano 2008: 184). However, Martsa (2013) identifies rules of conversion that may contradict Nagano's (2008) claim of conversion being a random process. To give an example, Martsa (2013: 263–286) specifies six different types of verbs that can be grasped by rules, e.g. "If *N* denotes an entity *E* which is put in entity *F*, then *V* converted from *N* can be used to mean putting *E* in *F*"; he adds that "*spice* the food" or "*cream* the coffee" demonstrate this rule.

3   Back-formation and analogy

This section presents several arguments favouring the description of BF as an analogical process. A brief overview of the accounts of BF as an analogical process is followed by its possible interpretation within the cognitive linguistic framework.

3.1   Back-formation as an analogical process

Bauer (2005: 13) observes that according to Saussure (1969: 228), only complex words can be the sources of analogy, because a specific pattern must be based on some property that can be repeated. For example, *trialogue*$_N$ was formed after the analogy of *dialogue*$_N$, as *di-* was misinterpreted as marking 'two'. In like manner, Koefoed and van Marle (2000: 1579) exemplify one aspect of reinterpretation whereby a simplex word is interpreted as if it was a complex one with BF. Their examples of back-formed words of this type include often cited instances such as *edit*$_V$ ← *editor*$_N$, *sculpt*$_V$ ← *sculptor*$_N$, *peddle*$_V$ ← *peddler*$_N$. This

correspondence between analogy and BF may be of key importance, because if Saussure's view is accepted along with Jespersen's (1954: 537–538) similar view of BF as 'metanalysis',[2] it seems that the core mechanism of analogy can be detected in BF as well. The rules specified above do not require reanalysis; traditionally, in the majority of cases an affix attaches to a base if certain preconditions are given. As demonstrated above, in BF these preconditions are ignored.

A further interpretation favouring the analogical nature of BF is based on Bybee's (2010: 73) view of analogy. Certain aspects of analogy proposed by her may be relevant for the understanding of BF as an analogic process. One of them is that analogy can be connected only with lexicalised items; there are instances of back-formed word pairs in the case of which hundreds of years passed between the documentation of the original and the back-formed components, cf. *sidle*$_V$ (1697) ← *sideling*$_{ADV}$ (c1330), *vint*$_V$ (1639) ← *vintage*$_N$ (c1450). In such instances it is not impossible to assume that by the time the back-formed word arose, the original one had already been lexicalised. Moreover, as it was already demonstrated, unproductive suffixes can be reanalysed by BF and subsequently subtracted as in *cross-refer*$_V$ ← *cross-reference*$_N$.

Another argument in favour of the analogic nature of BF comes from Kiparsky (1982: 22), who claims that "we do not even allow rules that delete an affix, let alone the more powerful type of operation which deletes an affix and simultaneously effects a category change". Analogy on the other hand can deal with this problem; as Bauer (2005: 76) argues, the main principle of analogy is that if an appropriate pattern exists, the creation of new forms is possible, which of course implies the subtraction of segments in case a suitable pattern is available. Martsa (2012: 216–218) observes that a rule requires formal and semantic input and output features to be specified in a principled way, but in relation to BF it is not possible to find such conditions. Although he manages to enumerate certain regularities that obtain in BF, he is led to the conclusion that BF is more likely to be based on analogy. The following formal and semantic attributes can be related to BF according to Martsa (2012: 217–218). In terms of form, he lists that the base word must be either complex or seen as complex by speakers, e.g. *windsurf*$_V$ ← *windsurfer*$_N$. Other formal considerations are that the word undergoing BF must be an open class item, except for verbs and the truncated element cannot be stressed. The semantic input that Martsa (2012) specifies is that mainly nouns are back-formed that feature agentivity (e.g. *curate*$_V$ ← *curator*), instrumentality (*typewrite*$_V$ ← *typewriter*) and actionality (*co-vary*$_V$ ← *co-variation*$_N$). The output item can be generalised as a transitive verb in most cases (ibid.).

To sum up, based on the account presented by Martsa (2012) among others, analogy appears to be a more promising perspective on BF. However, it needs to be added that these accounts also presume the existence of WFRs and consider analogy as a mechanism that may

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[2] 'Metanalysis' is thought to be a crucial element of the process of BF. This term was coined by Jespersen (1922: 173) to signal that "words or word-groups are by a new generation analysed differently from the analysis of a former age". In BF this definition may mean that a segment of a complex word might be reanalysed which may result in that the reanalysed segment is interpreted to be an affix. This particular segment is truncated, because for speakers it may be evident that a complex word must have a base. It may be the case that the reanalysed base word is not even complex originally, as for instance *editor*$_N$ (1649), a borrowing from French. *Editor*$_N$ may have undergone the aforementioned 'metanalysis'. Speakers might have interpreted *–or* as an agential suffix that might have been truncated via BF, resulting in *edit*$_V$ (1791). However, Nagano (2007: 35) argues that even if 'metanalysis' is an essential part of BF, it is not enough to describe it as it is necessary "to elucidate what kind of theoretical system underlies BF". In what follows, the identification of the suffix-like element that was truncated from back-formed words will be referred to as reanalysis.

potentially lead to an unequivocally definable rule that possesses clearly formulated formal and semantic input and output conditions. What is problematic in this sense is that it is not clear how many instances of back-formed words are sufficient to declare BF a rule-based process.

3.2   Analogy and paradigms

The paradigmatic approach of word-formation can strongly be linked to analogy; therefore, it is necessary to reckon with it as a possible underlying mechanism of BF. In this connection Štekauer (2000) quotes Pennanen's (1966) view concerning the analogic nature of BF, claiming that the "parallel existence of a root word and its derivative(s) is the general pattern, according to which in the case of back-formation, too, the missing member or link is created" (qtd. in Štekauer 2000: 72). This can be illustrated by the example $sculpt_V \leftarrow sculptor_N$ applied to Figure 2:

$$\begin{pmatrix} < sculpt > \\ /sk\Lambda lpt/ \\ V \\ 'to\ sculpt' \end{pmatrix} \leftrightarrow \begin{pmatrix} < sculptor > \\ /'sk\Lambda lptə(r)/ \\ N \\ 'one\ who\ sculpts' \end{pmatrix}$$

Figure 2. Back-formation and paradigms

According to the *OED*, $sculptor_N$ (1634) was first recorded more than two hundred years before $sculpt_V$ (1864) and it may have been the case that once the noun was borrowed from Latin, a verb was needed to express the activity. $Sculptor_N$ then may have been reanalysed, supposing that *-or* was an agentive suffix, and on the analogy of other agentive nouns ending in *-or* or *-er*, $sculpt_N$ was back-formed.

Bauer (2005: 71) explains that in BF it may happen that the meaning of the back-formed word can be inferred from the meaning of the original word. He notes that "new words often arise in the presence of another word with a similar base, which may have the function of making the new word easier to process". Consider $self$-$destruct_V \leftarrow self$-$destruction_N$ which instantiates what Bauer calls paradigm pressure and demonstrates that if BF were the reversing of a WFR, then the back-formed word in use would have to be *self-destroy (Martsa 2011). As regards $self$-$destruct_V$, it may be the case that on the analogy with word pairs such as $deduct_V/deduction_N$, $construct_V/construction_N$, and $seduct_V/seduction_N$, the truncation of *-ion* was preferred. This can be illustrated in the following way:

$$\begin{pmatrix} < self - destruct > \\ /,self.dɪ'str\Lambda kt/ \\ V \\ 'to\ destroy\ oneself' \end{pmatrix} \leftrightarrow \begin{pmatrix} < self - destruction > \\ /,self.dɪ'str\Lambda k.ʃən/ \\ N \\ 'the\ destruction\ of\ oneself' \end{pmatrix}$$

Figure 3. The formation of self-destruct

The situation may be similar to what supposedly happened in $sculpt_V \leftarrow sculptor_N$, only in *self-destruction*, under the paradigmatic pressure of word pairs $deduct_V/deduction_N$,

*construct*ᵥ/*construction*ɴ, etc., *-ion* may have been analysed as a suffix. It should be noted that *auto-destruct*ᵥ, the synonym of *self-destruct*ᵥ, is also a BF, however according to the *OED*, it was back-formed from *auto-destructive*ₐ.

4 Back-formation and cognitive grammar

The previous analyses have shown that it is problematic to subscribe to the interpretation of BF as a rule-based process as neither the reversing of WFRs, nor clipping affixes explained BF sufficiently, owing to the restrictions that the respective paradigms within which they were presented, posited to these ideas (Nagano 2007, 2008). Moreover, Nagano's (2007, 2008) account on BF as a joint operation of conversion and clipping was labelled as problematic, because conversion that is held a rule-governed process by Martsa (2013, cf. 2011, 2012) is highly unlikely to function in parallel with clipping, a phenomenon of word creation that is not based on rules (Martsa 2011, 2012). Analogy has appeared to be a more promising approach with regards to the understanding of BF, since it is more efficient in demonstrating the patterns speakers of English may recognise when assigning an affix to words that is not actually present. However, accounts on analogy take the existence of rules as a precondition and tend to suggest that analogical relations can turn into rules if sufficient amounts of words are formed.

4.1 Rule + analogy = schema?

The paper has so far listed a wide range of possible explanations that have aimed to explore the underlying mechanism of BF. However, there is one approach that to my knowledge has not yet been considered in detail as a possibility related to BF: cognitive grammar (CG), as settled by Langacker (1987) may prove to be a beneficial alternative to the exploration of the process. The first key step in this connection is to note that under CG the problem of distinguishing between rules and analogy ceases to exist. The concept that makes this possible is that of 'schema' that is extracted owing to a basic human cognitive ability: generalization (Tuggy 2007: 83). Langacker (1987: 445–447) claims that if rules are seen as schemas and analogical patterns are established, a distinction between the two notions is redundant. According to Tuggy (2005: 235), a schema is a general, unspecified entity that does not need to involve specifications. Hence, it can be defined as a "generalization about the shape of a lexical item of a certain category" (Bybee 2007: 131). The traditional conceptions of analogy resemble schemas in that they are based on perceived similarities between structures (Tuggy 2007). An important feature of schema theory that makes it a powerful means of explanation related to BF is that it allows for partial schematicity, which means that there does not need to be an absolute correspondence between constituents of schemas; in fact, full schematicity hardly occurs (Tuggy 2007: 86).

The survey of different accounts on BF has shown that the main issues relating to the description of the mechanism are connected to its form, i.e. that concatenation is the usual means of creating words and to its anti-iconic nature, namely that even if form is subtracted, meaning is allegedly added to the construction. In what follows, these will be addressed.

In terms of form, the above-mentioned reanalysis of words undergoing BF may be motivated by schemas. Burridge (2011) notes that BF seems to function as a process that "fills the void", in the sense that it is related to entrenched patterns that motivate the analysis of words that do not contain an affix to be analysed as if they had been created by affixation,

e.g. *gold-dig*$_V$ ←*gold-digger*$_N$. This idea can be confirmed based on the collection of back-formed words obtained from the *OED*, as in most cases the truncated element is affix-like that was reanalysed[3] and perceived as an instantiation of a schema (cf. Ladányi 2017). For example, *butch*$_V$ is listed as BF by the *OED*, deriving from *butcher*$_N$. According to the *OED*, in this case *–er* in *butcher* was analysed as an agentive suffix. In line with Ladányi (2017), it is assumed that speakers analyse such constructions as being instantiations of schemas; in the case of *butch*, the base word was compared to pairs as *writer*$_N$-*write*$_V$, *singer*$_N$-*sing*$_V$, etc. By way of illustration, see Figure 4 based on Taylor (2002: 276):
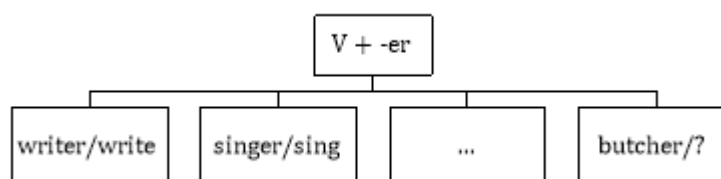

Figure 4. Back-formation and schematicity

The figure may also explain why reversing rules or truncating affixes that are not productive or non-existent is plausible under BF; the reason may be that speakers take form into consideration and even if a given suffix is not used productively to create words anymore, the high level of entrenchment of the schema in which it is present motivates language users to interpret a suffix in words that were in reality not created by a WFR and do not involve an actual suffix. By way of illustration, a search in the *Corpus of Contemporary American English* (*COCA*) shows that there are 3,237 hits that are nouns and exhibit the ending *–age*, a suffix claimed to be unproductive by Nagano (2008); it must be added that the *COCA* search is an extremely exaggerated one as the noun *age* is also among the hits. Nevertheless, the data may point to the direction that the fact that there are numerous instances of nouns ending in *–age* may have been a motivating factor for speakers to analyse *salvage* as a complex unit.

The notion of reanalysis appears to be confirmed by the *OED* as well. To explore the possibility of a schema-driven theory, all the entries containing the annotation "back-formation" were observed in the online edition of *OED*. The search returned 847 hits that were analysed; however, entries exhibiting the following features were excluded:
1) Draft additions, e.g. *blast-freeze*;
2) Back-formations of solely etymological relevance, e.g. *cassock* (from French *casaque*, allegedly back-formed from *casaquin*);
3) Back-formed words of uncertain origin, e.g. *drove*$_{V2}$: BF from *drover*$_N$ or conversion from *drove*$_N$;
4) Obsolete words, e.g. *brook*$_V$;
5) Elements containing proper nouns, e.g. *Finlandize* ← *Finlandization*;

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[3] According to Ladányi (2017), BF may or may not involve the above-mentioned reanalysis. However, the present paper assumes that BF is tied to reanalysis (cf. Martsa 2007), because the bases of the majority of words created with BF contain elements that possess the same form as existing as suffixes. Moreover, the instances Ladányi (2017) cites as BF without reanalysis, such as the Hungarian *omnibusz*$_N$ → *busz*$_N$ are possibly better classified as instances of clipping, since in this case there is no affix-like element involved (*omni-* is rather considered as a combining form in English, for example) and the category of the back-formed word also did not change, i.e. both words are nouns.

6) Combining forms, e.g. *eco-*
7) Words that are used exclusively in a scientific context,[4] e.g. *chemotax*$_V$.

The application of the criteria led to 302 constructions; merely four constructions out of these do not show that an affix-like element was truncated, namely *grid*$_N$ ← *gridiron*$_N$, *lap*$_V$ ← *lap-cock*$_N$, *muckamuck*$_N$ ← *high muck-a-muck*$_N$ and *scape*$_N$ ← *landscape*$_N$. In these cases, it is possible that they were rather created by clipping as opposed to back-formation as with the exception of *lap*, the category of the word does not change. However, the remaining 298 constructions exhibit the truncation of an affix-like element that allows for the implication that speakers attempted to interpret the source words as complex elements that was allowed for by already existing and entrenched schemas. By way of illustration, 59 constructions were considered as containing the *-ing* suffix, e.g. *carjack*, *fox-hunt* and *sight-see*.

The prevalence of form over meaning in the course of the formation of new words is not unique with reference to BF. By way of illustration, Benczes (2010) hypothesises that alliteration is the driving force behind the construction of compounds as *belly button*. She adds that even though *tummy* is an equally fit candidate of modifying *button*, as it can also be regarded as informal, there is a preference for *belly*.[5] Benczes (2012) further proves this point with constructions as *tummy trouble*, referring to stomach pain that appears to be based on alliteration. The examples provided by Benczes (2010, 2012, 2013) show that linguistic motivation may not only stem from meaning, but form can also motivate WF. Based on the plentiful number of back-formed words that exhibit an affix-like element, it can be proposed that it is the form of the base words that motivate WF.

The other controversial issue is related to the meaning of BF, as in several cases it is only the form of base words that is truncated but meaning is added as illustrated by *vacuum-clean*$_V$ above. The core of this problem may be grasped by the "building-block" metaphor, (partially) refuted by Langacker (1987). The metaphor refers to the conceptualisation of the meaning of complex expressions as an entity built up from separate blocks, each of which adds something to their form and simultaneously, to their meaning. Langacker (1987) notes that non-compositionality, whereby the whole does not represent the meaning of the parts is a case in point. For example, the compound *think-tank*,[6] referring to "A research institute or other organization providing advice and ideas on national or commercial problems; an interdisciplinary group of specialist consultants; (also) a private space used for deliberation" (*OED*) cannot be interpreted solely on the basis of the combination of *think* and *tank*. The building-block metaphor is also problematic with reference to affixation; Langacker (1999: 152–153) claims that although *computer* refers to "something that computes", speakers are not as aware of the verb stem as in the case of *complainer*, for example. Taylor (2002: 282) adds that the goal of morphological analysis is not to break a construction into its composite parts; rather, the aim is to identify phonological and/or semantic commonalities within a given language. He also notes that the creation of a complex form happens along with existing constructional schemas rather than 'building' it from component parts.

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4   There are numerous examples of BF that the OED marks as belonging to the domain of chemistry of biology, as *chromatograph*$_V$. The corpus-based account does not address these words as they are highly restricted to the respective domains.

5   Benczes (2013) notes that tummy button does exist in the OED. However, corpus data retrieved from COCA by Szabó (2014) shows that whereas tummy button returned no hits (regardless of its orthographic form, i.e. *tummy button*, *tummybutton* or *tummy-button*), *belly-button* occurs 23, *bellybutton* 72, and *belly button* 282 times.

6   "think-tank, n.". *OED Online*. July 2018. Oxford University Press.
    http://www.oed.com/view/Entry/200809?redirectedFrom=think+tank (accessed September 3, 2018).

In terms of analysability, CG distinguishes two levels; the phonological one and the semantic one. Taylor (2002: 282) notes that the analysability of the different levels does not always correlate, e.g. in terms of English inflection, in most cases *-s* marks the plural; however, in the case of *men*, we cannot find it, meaning that the semantic and phonological levels do not match up. Ladányi (2017: 520) notes that although those ones are easier to process that are explicitly marked for each function, as in the plural *-s* in *books*, markedness in this sense is a question of gradation and not a mutually exclusive category. Taylor (2002) also discusses the phenomenon of 'partial analysability', an example of which is *butcher* and notes that there is no corresponding verb, i.e. *butch* (Taylor 2002: 286). However, this is not the case as according to the *OED butch* is a back-formed verb from *butcher*. The following figure based on Taylor (2002: 285) demonstrates a schematic representation of the match between the semantic and phonological levels, along with the assumed reanalysis related to BF:
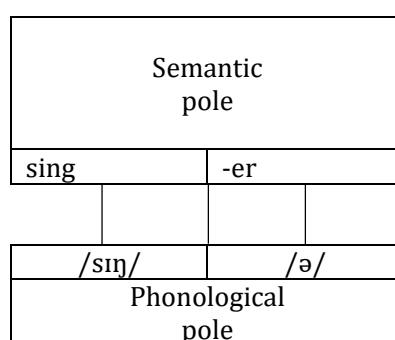
Figure 5. Phonological and semantic poles (after Taylor 2002: 285)

In the case of *singer*, as demonstrated by the figure, speakers can easily identify the constituents; allegedly, in the case of *butcher*, language users attempted to establish a similar correspondence. Hence, *-er* was reanalysed as a suffix. Note that according to the *OED*, the meaning of *butch* refers to slaughtering animals for market.

Another vital point to be considered is that WF does not happen in isolation and that the real-world knowledge of speakers must also be kept in mind. This is shown by Martsa's (2013) account on conversion, a process usually considered to be "non-iconic", since in this case, form appears to stay intact, whereas meaning increases. He notes that we cannot omit the encyclopaedic knowledge of speakers that enables them to interpret constructions. Martsa (ibid.) illustrates the importance of such knowledge with the verb *napalm* that refers to dropping napalm bombs, created by the conversion of the corresponding noun. He observes that the meaning of the verb can be related to the knowledge of *napalm* as a noun, i.e. that these bombs were used by the military of the USA to burn down villages during the war in Vietnam (Martsa 2013: 259).

In sum, the fact that we cannot find affixes that are prototypically assigned to a certain meaning in the case of words created by BF does not mean that they must be deemed problematic. Rather, it may point towards the direction that when it comes to forming new words, their form should also be reckoned with as a source of motivation, as it was seen in the case of alliterating compounds, for example (cf. Benczes 2010, 2012, 2013). Needless to say, this relatively irregular feature of BF may also influence its frequency in actual language use. In what follows, this aspect will be addressed with the help of corpus data.

5 Back-formed words and where to find them

Fowler (1998: 86) observes that "for many people donate (from donation), enthuse (from enthusiasm), and liaise (from liaison) are as tasteless as withered violets"; hence it appears that BF produced words that are often marginally acceptable for native speakers of English. To observe the occurrence of words created via BF in language use, verbs back-formed from nouns and adjectives were observed relying on the data of the *Corpus of Contemporary American English* (*COCA*), a regularly updated corpus of more than 560 million words dating from 1990 to 2017. The present investigation is confined to words the first recording of which is from the 20th century to our days. The aim of the corpus investigation is to reveal the parameters along which words created with BF appear in present-day English, as *COCA* makes it possible to assemble hits according to the genres they belong to, i.e. spoken, fiction, newspaper, magazine and academic.[7] Owing to their irregular nature, it is assumed that the observed items are most often present in contexts that allow for more colloquial language use, namely that more back-formed words will be found in magazines in comparison with the academic genre.[8]

The list of words that give the back-formed units observed in *COCA* were selected from the hits returned to the search "back-formation" in the *OED*, which led to a list of 98 verbs. Note that the *COCA* searches were based on the orthography provided by the *OED*; for example, in the case of compounds, such as *sleep-walk*, the *OED* was decisive as to use a hyphen or search for them written separately or as a single word. The detailed list of verbs that fell under observation can be found in the Appendix.

The corpus data shows that back-formed verbs from *OED* are relatively few in *COCA*; only 50 of the 98 verbs have a token in the corpus at all. Moreover, these examples cannot be found in a large number in the corpus either. The most populous genre in which they occur is that of magazines (715 hits) that may demonstrate that they are used in a rather informal environment as compared to academic examples. The following table summarizes the contexts in which the verbs were found:

Genre	Number of hits
Magazines	715
Newspapers	599
Academic journals	349
Spoken	306
Fiction	250

Table 1. Back-formed verbs in the genres of COCA

The table demonstrates that the genre in which back-formed verbs occur with a relatively high frequency is that of newspapers, whereas there are considerably fewer instances in academic journals, transcripts of spoken texts and fiction. The relatively few numbers of

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7 Based on Davies (2008-) sources of *COCA* are as follows: the spoken category is based on the transcripts of unscripted television and radio programmes, academic journals cover a wide variety of peer-reviewed journals and fiction comes from literary and children's magazines, books, etc. Magazines cover a wide range of popular magazines, such as *Cosmopolitan*, *Time* and *Christian Century*. Newspapers include ten sources from the United States, such as the *New York Times*. For further details see: https://corpus.byu.edu/coca/help/texts.asp

8 Note that the word count of COCA is relatively evenly divided with regards to the different genres (cf. https://corpus.byu.edu/coca/help/texts.asp).

back-formed items in the latter three genres may reveal that they are not readily accepted in English. The spoken context appears to be especially telling, as it may be considered to be relatively spontaneous, since this segment of the corpus comes from unscripted speech. Magazines and newspapers may resort to the use of more irregular forms as they need to seek attention that may be ensured by using unusual items of language.

In terms of time, *COCA* distributes the hits in four-year periods. The data shows that back-formed verbs appeared slightly more often between 1995 and 1999, and 2000 and 2004. Note that the last period, i.e. 2015-2017 incorporates a shorter period; therefore, we cannot yet know whether the number of items will rise in the next four-year period.
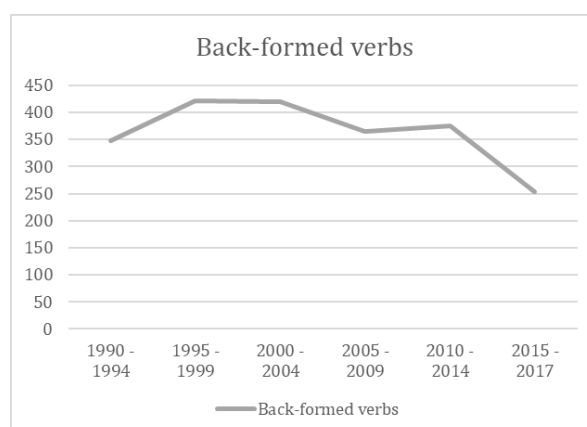
Figure 6. Back-formed verbs from 1990 to 2017

6   Conclusion

The aim of the paper was to present the views held on back-formation across different linguistic approaches. There are numerous linguists who explain the operation of BF along various lines; Katamba (2003: 128), for one, views BF as the removal of affixes from the base. The similar view is taken by Plag (2005:37) who claims that back-formed words are derived via the deletion of a suffix, or a segment that is a suffix. Bauer (1993: 231–232) notes that BF as a process is usually described as the reversing of a WFR; however, his final conclusion is that BF is more likely the deletion of suffixes than the "undoing of morphological rules", because if the latter were the underlying process of BF, an appropriate WFR would be necessary to operate. Additionally, those interpretations of BF were presented that consider it as an analogy-based mechanism, such as Martsa (2011, 2012). It was established that although the foundation of analogy appears to be a promising viewpoint with regards to the interpretation of BF, it appears to be problematic that these standpoints tend to consider the process being rule-based a possible prospective in the future, depending on the regularity of the instances that may be produced via BF. Approaching the issue from the perspective of CG, it has been questioned whether the distinction between rule and analogy is necessary at all (Langacker 1987). It has been proposed that words created via BF can be rendered under schemas, as defined by Tuggy (2005, 2007). The existence of schematicity behind BF was confirmed by the numerous examples of verbs obtained from the *OED* that were created via BF, in which it was an affix-like element that was truncated. Under schemas, the fact that the truncated affix-like element is not a productive affix or is not normally

capable of forming certain word classes (cf. Martsa 2011, 2012) is not problematic, since it is postulated that the motivating force that triggers BF is based on the forms of the words, i.e. by the possible understanding of *–er* as an agentive suffix in *butcher*, for example. The influence of form is not without precedent in WF, as shown by Benczes (2010), who claims that in the compounds *belly button*, the selection of *belly* over *tummy* rests on the ground that *belly* alliterates with *button*.

It may be the relatively irregular nature of BF that leads native speakers to use words created via this process relatively less frequently. The paper also attempted to find the possible contexts in which back-formed verbs, the most populous back-formed word class emerges the most commonly. Based on the data retrieved from *COCA*, back-formed items are present in magazines in most cases. This may be due to their irregularity, as they may be more attention-seeking. It was also revealed that several verbs that are in the *OED* cannot be found in *COCA*, unveiling that they rarely occur in actual language use.

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Appendix

-ANCE

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
concord	concordance	1969	-	-	-	-	-	-	-	-	-	-	-
surveil	surveillance	1960	28	5	12	7	5	3	7	6	10	11	20

-ANT

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
redund	redundant	1905	-	-	-	-	-	-	-	-	-	-	-

-ATION

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
casualize	casualization	1950	-	-	-	-	1	-	-	1	-	-	-
decriminalize	decriminalization	1963	18	-	20	26	5	6	8	12	15	9	19
disinform	disinformation	1978	-	1	-	-	2	-	1	-	1	1	-
dismute	dismutation	1947	-	-	-	-	-	-	-	-	-	-	-
divisionalize	divisionalization	1982	-	-	-	-	-	-	-	-	-	-	-
gelate	gelation	1915	-	-	-	-	-	-	-	-	-	-	-
immiserate	immiseration	1956	-	-	2	-	1	-	-	1	-	-	2
vinify	vinification	1969	1	-	-	1	-	-	-	1	1	-	-

-ED

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
automate	automated	1954	20	10	159	53	92	55	53	72	44	71	39
fetishize	fetishized	1934	6	1	13	7	11	3	2	9	6	8	10

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
half-ass	half-assed	1954	-	-	2	1	-	-	-	1	-	2	-
index-link	index-linked	1974	-	-	-	-	-	-	-	-	-	-	-
involute	involuted	1904	-	1	-	-	3	-	1	-	2	-	1
jam-pack	jam-packed	1938	-	-	1	1	-	-	-	1	-	1	-
silver-point	silver-pointed	1976	-	-	2	-	-	-	-	2	-	-	-
sozzle	sozzled	1937	-	-	-	-	-	-	-	-	-	-	-
tenure	tenured	1975	-	-	-	-	-	-	-	-	-	-	-
unweight	unweighted	1930	-	-	15	2	-	8	3	5	1	-	-

-ENT

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
adolesce	adolescent	1909	-	-	-	-	-	-	-	-	-	-	-

-ER

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
back-stab	back-stabber	1925	1	-	1	4	-	1	2	2	1	-	-
bludge	bludger	1919	-	-	-	-	-	-	-	-	-	-	-
deverge	deverger	1980	-	-	-	-	-	-	-	-	-	-	-
escalate	escalator	1927	-	-	-	-	-	-	-	-	-	-	-
gold-dig	gold-digger	1926	-	-	-	-	-	-	-	-	-	-	-
grice	gricer	1971	-	-	-	-	-	-	-	-	-	-	-
guest-conduct	guest-conductor	1945	-	-	-	1	-	-	-	-	1	-	-
jig-bore	jig-borer	1939	-	-	-	-	-	-	-	-	-	-	-
knuckle-dust	knuckle-duster	1909	-	-	-	-	-	-	-	-	-	-	-
lech	lecher	1911	-	-	-	-	-	-	-	-	-	-	-
loud-hail	loud-hailer	1943	-	-	-	-	-	-	-	-	-	-	-
nosy park	nosy parker	1937	-	-	-	-	-	-	-	-	-	-	-
poetaste	poetaster	1908	-	-	-	-	-	-	-	-	-	-	-
ripsnort	ripsnorter	1932	-	-	-	-	-	-	-	-	-	-	-
shake dance	shake dancer	?	-	-	-	-	-	-	-	-	-	-	-
spelunk	spelunker	1965	-	1	1	-	-	-	-	1	1	-	-

strap-hang	strap-hanger	1908	-	-	-	-	-	-	-	-	-	-	-
tape-record	tape-recorder	1950	5	4	12	6	18	6	23	9	3	3	1
trend-set	trend-setter	1965	-	-	-	-	-	-	-	-	-	-	-
trouble-shoot	trouble-shooter	1938	-	1	3	1	-	2	-	-	-	3	-
tub-thump	tub-thumper	1920	-	-	-	-	-	-	-	-	-	-	-
turbo-charge	turbo-charger	1980	-	-	3	-	-	-	1	1	-	1	-
tweeze	tweezers	1932	9	6	15	1	-	1	1	9	15	3	2
vacuum-clean	vacuum-cleaner	1912	-	1	-	-	-	-	-	-	1	-	-
verge	verger	1900	-	1	3	-	1	1	3	-	1	-	-
whipper snap	whipper snapper	1908	-	-	-	-	-	-	-	-	-	-	-
windsurf	windsurfer	1969	2	2	10	3	1	8	4	1	2	2	1

-IC

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
cathect	cathectic	1936	-	-	-	1	1	-	-	2	-	-	-

-ING

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
bastard-trench	bastard-trenching	1923	-	-	-	-	-	-	-	-	-	-	-
belly-land	belly-landing	1944	-	1	-	-	-	-	-	-	1	-	-
carjack	carjacking	1991	5	4	3	12	-	3	4	2	2	8	5
cash-crop	cash-cropping	1960	-	-	-	-	-	-	-	-	-	-	-
crash-land	crash-landing	1941	1	4	9	6	2	3	6	6	3	4	-
crazy-pave	crazy-paving	1960	-	-	-	-	-	-	-	-	-	-	-
cross-dress	cross-dressing	1966	3	3	3	1	1	2	2	2	1	2	2
direct-dial	direct-dialling	1968	-	1	-	1	-	1	-	-	1	-	-
fly-tip	fly-tipping	1985	-	-	-	-	-	-	-	-	-	-	-
intercool	intercooling	1944	-	-	-	-	-	-	-	-	-	-	-
interline	interlining	1975	4	-	1	2	10	8	1	1	2	1	4
kite-fly	kite-flying	1965	-	-	-	-	-	-	-	-	-	-	-
lick-spittle	lick-spittling	1927	-	1	-	-	-	-	-	1	-	-	-

BF	Source	OED year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
mainstreet	mainstreeting	1960	-	-	-	-	-	-	-	-	-	-	-
shadow-cast	shadow-casting	1971	-	-	-	-	-	-	-	-	-	-	-
shrink-wrap	shrink-wrapping	1969	-	15	28	15	3	8	13	13	14	12	1
spear-fish	spear-fishing	1962	-	-	-	-	-	-	-	-	-	-	-
spray-paint	spray-painting	1928	6	3	19	7	1	4	7	6	15	3	1
switch-sell	switch-selling	1965	-	-	-	-	-	-	-	-	-	-	-
tail-walk	tail-walking	1971	-	-	-	-	-	-	-	-	-	-	-
type-cast	type-casting	1946	5	-	1	2	-	3	1	2	1	-	1
upkeep	upkeeping	1926	38	131	217	189	84	114	118	100	114	132	81
valet-park	valet-parking	1983	-	-	-	-	-	-	-	-	-	-	-
vape	vaping	1983	1	1	10	3	-	-	-	-	-	4	11
wheel-engrave	wheel-engraving	1937	-	-	-	-	-	-	-	-	-	-	-

-ION

BF	Source	OED year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
derecognize	derecognition	1964	1	-	1	1	-	1	-	1	-	1	-
deregulate	deregulation	1964	46	2	46	71	36	43	59	53	17	17	12
emote	emotion	1900	19	9	28	11	8	11	7	19	13	15	10
liaise	liaison	1928	5	18	4	1	18	3	4	3	10	15	11
postdict	postdiction	1952	-	-	-	-	16	2	5	6	-	3	-
retrodict	retrodiction	1940	-	-	-	-	1	-	-	1	-	-	-
televise	television	1926	42	2	35	103	9	59	59	29	21	16	7

-ISH

BF	Source	OED year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
peeve	peevish	1908	-	-	-	-	-	-	-	-	-	-	-

-IVE

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
explete	expletive	1902	-	-	-	-	-	-	-	-	-	-	-

-MENT

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
flower-arrange	flower-arrangement	1955	-	-	-	-	-	-	-	-	-	-	-

-OUS

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
stupend	stupendous	1904	-	-	-	-	-	-	-	-	-	-	-

-Y

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
bibliograph	bibliography	1961	-	-	-	-	-	-	-	-	-	-	-
choreograph	choreography	1943	34	16	36	57	17	25	26	38	40	19	12
floss	flossy	1938	-	1	-	-	-	-	-	-	-	-	1
holograph	holography	1968	-	1	-	-	-	-	-	-	1	-	-
nap	nappy	1953	-	-	-	-	-	-	-	-	-	-	-

-ER/-ING

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
ground-strafe	ground-strafer ground-strafing	1943	-	-	-	-	-	-	-	-	-	-	-

joy-pop	joy-popper joy-popping	1939	-	-	-	-	-	-	-	-	-	-	-
loud-hail	loud-hailer loud-hailing	1943	-	-	-	-	-	-	-	-	-	-	-
scat-sing	scat-singer scat-singing	1934	-	1	-	-	-	-	-	-	-	1	-
sleep-walk	sleep-walker sleep-walking	1923	-	3	-	-	-	-	-	-	1	2	-

-ED/-ING

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
jackroll	jackrolled jackrolling	1914	-	-	-	-	-	-	-	-	-	-	-

IRREGULAR

BF	Source	*OED* year	SPOK	FIC	MAG	NEWS	ACAD	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2017
tailor-make	tailor-made	1946	6	-	4	2	2	4	1	1	3	5	-