135. English

Abstract

This article gives an overview of English word-formation. It is shown that, in spite of being a language with hardly any inflection, there is a rich inventory of word-formation devices, including compounding, affixation, conversion, and prosodic morphology. The formal and semantic characteristics of these devices are discussed, and examples are given to illustrate the intricate patterns that English complex words present.

1. Introduction

English is a language with very little inflectional morphology, but with a large inventory of word-formation devices that have attracted the interest of many researchers for a long time. Hence, there is a rich literature on most aspects of English word-formation, ranging from numerous monographs and research articles on individual phenomena to textbooks such as Adams (1973), Bauer (1983), Carstairs-McCarthy (2002), Plag (2003), Schmid (2011), and handbook-style overviews such as Jespersen (1942), Marchand (1969), Adams (2001), Bauer and Huddleston (2002) and Bauer, Lieber and Plag (2013).

In recent years, studies in English word-formation have profited from the availability of electronic corpora, databases and dictionaries such as *Cobuild* (Sinclair 1987), *The British National Corpus* (e.g., Davies 2004), *The Corpus of Contemporary American English* (Davies 2008−), *CELEX* (Baayen, Piepenbrock and Gulikers 1995), the *Oxford English Dictionary* or general internet search engines. In particular, these resources have been employed to systematically search for newly created words, which is crucial for any attempt at describing the present-day speakers' word-formation knowledge. Most of the examples to be given below are taken from such sources.

2. General overview

Word-formation in English makes use of composition (also known as compounding), of prefixation, suffixation and (only marginally) infixation, and of non-affixational process-

es such as conversion, blending, and clipping. In addition, one can find paradigmatic processes such as backformation and analogy. We will discuss each of these in the subsequent sections. Before we do so, however, we need to clarify some more general theoretical and empirical problems involved in the study of word-formation in English.

One such problem is the demarcation of compounding and syntax, which is especially intricate because English has so little inflection that, unlike in other Germanic languages like German, this criterion is not very helpful in defining the boundary between phrases on the one hand, and words on the other. The literature on this problem is vast, but in spite of the many efforts to clarify this particular boundary area, success has been very limited.

The problem is particularly evident in discussions of compounding. Unlike in many other languages, none of the criteria (nor all criteria applied together) proposed in the literature for English (e.g., stress assignment, pronominalization, lexicalization, spelling) is able to neatly differentiate between constructions that are clearly syntactic (i.e. phrases) and others that are clearly morphological (i.e. compound words) in nature (see Bauer, Lieber and Plag 2013 for an overview discussion). The search for a clear boundary for the language under discussion is therefore futile, and I will be inclusive rather than exclusive in my discussion of pertinent forms in section 3.

Another subproblem of the syntax-morphology divide is the issue of lexicalized multi-word expressions like *forget-me-not*, *jack-in-the-box*, verb-particle constructions or phrasal verbs such as *get along*, *put up with*, *give up* or idiomatic expressions like *tongue in cheek.* In accordance with the literature I consider these lexicalized phrases, which are outside the realm of word-formation.

A study of word-formation as against inflection also raises the question of which morphological processes belong to which of the two domains. For English this is generally not an issue apart from one suffix, adverbial *-ly.* In spite of some good arguments for treating it as inflectional, it will be included in our discussion of adverbial derivation in section 4.4.

The problem of productivity and lexicalization looms large in the study of word-formation, since many complex words have meanings or phonological properties that cannot be compositionally derived on the basis of the constituent elements. Such cases of semantic or phonological opacity (as in *butterfly* or *government* [gʌvmənt] 'the body of persons governing') are numerous in English, especially due the to extensive borrowing of foreign complex words. In this article we will mainly focus on transparent and productive morphologial processes in order to describe the present-day speaker's word-formation system. The reader is referred to Plag (1999), Bauer (2001) and Plag (2006) for discussions of the role and nature of productivity in English word-formation.

3. Composition

3.1. General remarks

Composition or compounding, especially noun-noun compounding, is generally regarded as the most productive word-formation process in English, but studies systematically comparing the productivity of compounding with that of other processes are lacking.

Compounds can be defined as words that consist of two or more bases. Bases in turn can be defined as elements that can serve as input to further word-formation, i.e. to compounding and suffixation. Bases can be words (as in *breath test*), bound roots (*astrophysics*), or even phrases (*strawberries-in-July talk*). There is, however, the restriction that the right-hand base cannot be a phrase, but must be a bound root or a word. According to this definition, neoclassical formations are also compounds (to be discussed in section 3.3).

One can distinguish between determinative and coordinative compounds. In the former the left-hand element is either a modifier of the head (as in *opera glass*, *hothouse*, *razor-sharp*, *knee-deep*), or serves as an argument of the head (*opera singer*, *club member*, *sugar-free*). Determinative compounds are right-headed, which means that the right-hand base determines the grammatical properties of the compound as a whole (e.g., syntactic category, count vs. mass, etc.), as well as the semantic category of the compound. Thus an opera glass is a kind of glass, not a kind of opera. Determinative compounds are binary structures, even if they contain more than two bases. Thus, multi-word compounds such as *street soccer day* or *child care center administration staff* can be analyzed as consisting of two immediate constituents, one or both of which may be a compound itself: [[*street soccer*] *day*], or [[[*child care*] *center*] [*administration staff*]].

Coordinative compounds, on the other hand, are compounds which consist of elements of the same syntactic category and in which the elements are in an equal semantic relationship, i.e. none of the two concepts denoted is subordinate to the other. These compounds are therefore not clearly right-headed, at least semantically. Coordinative compounds may be appositional, additive or compromise (Bauer 2008). Appositional compounds refer to single entities that represent the intersection of two sets. A *nerd-genius* is both a nerd and a genius, a *scholar-activist* is both a scholar and an activist. Additive compounds refer to entities that represent the sum of two sets, as in many territory names (*Bosnia-Herzegovina*, *Austria-Hungary*). Adjectival additive compounds combine two properties (*deaf-mute* refers to a state of being both deaf and mute). Compromise compounds refer to intermediate or blended properties, as in *blue-green*, *southwest*. Coordinative compounds may contain more than two elements (as in *AOL-Time Warner*, *artist-singer-songwriter*), in which case it is hard to argue for hierarchically structured binary structures, instead of flat ternary structures.

An important issue in the discussion of English compounds is their stress behavior. While traditional accounts hold that two-member compounds are stressed on the first element (*ópera singer*, e.g., Bloomfield 1935: 180, 228), it is often acknowledged (e.g., even by Chomsky and Halle 1968: 15–18, the inventors of the so-called "compound (stress) rule") that compounds can also be right-stressed (e.g., *home phóne*). In natural speech, about one third of the noun-noun compounds are in fact right-stressed (cf. Sproat 1994; Plag 2010; Bell and Plag 2012), which shows that stress variability is not a marginal phenomenon. Which of the two constituents will be more prominent in a given compound is an intricate question. First, there is variability across and within speakers (Kunter 2011, ch. 8), second, there is variability across different varieties of English (cf. Giegerich 2004: 15–16), and, third, there is variability across contexts when contrastive stress comes into play. Abstracting away from these three sources of variability, a number of factors have been successfully shown to determine compound stress assignment in noun-noun compounds, namely semantics, lexicalization, constituent family and informativity (cf. Plag et al. 2008; Arndt-Lappe 2011; Bell and Plag 2012). These factors work

in the following way: compounds that express certain semantic relations (e.g., 'N2 is located at N1', 'N2 is made of N1', coordinative compounds) tend to prefer a certain stress pattern, more lexicalized compounds tend to be left-stressed, compounds that share a left or right member tend to be stressed in the same way, and less informative second constituents tend not to be stressed. Compounds with more than two constituents seem to follow the same principles as compounds with only two constituents (Kösling and Plag 2009; Giegerich 2009), contra theoretical claims that branching direction is the decisive influence (cf. Liberman and Prince 1977).

Let us now turn to the kinds of combinations we find in English compounds. Table 135.1 gives an overview, grouped by the four major syntactic categories nouns, adjectives, verbs and prepositions.

Tab. 135.1: Compound types by syntactic category

	noun	adjective	verb	preposition
noun	*house speaker*	*ankle-deep*	*babysit*	*year-in*
adjective	*loudspeaker*	*light-green*	*blackmail*	*tuned-in*
verb	*spoilsport*	*go-slow*	*stir-fry*	*push-up*
preposition	*afterthought*	*incoming*	*downgrade*	*into*

Perhaps surprisingly, all combinations are attested. However, as will become clear as we go along, not all of these combinations are productive, and not all of the combinations arose through a process in which a speaker combined two bases to form a new word exhibiting the properties of compounds as described above. Following Bauer, Lieber and Plag (2013) I will use the term *canonical compound* for compounds productively formed by combining two or more bases, and *non-canonical compound* for forms that arose in a different way.

For example, complex prepositions like *into*, *onto*, *throughout*, *whereafter*, *therefore*, *notwithstanding*, *hereby* arose through the univerbation of frequently adjacent forms. Other non-canonical compounds seem to be the product of a process of inversion, as in the case of preposition-verb or preposition-adjective compounds like *download*, *outsource* and *inbuilt*, *upcoming* (Berg 1998). There are also non-canonical compounds resulting from conversion and stress shift (as in, for example, *break dówn → bréakdown*, *push úp → púsh-up*), or from backformation. Backformation is especially prevalent with compound verbs that are backderived from synthetic compounds, as evidenced in *babysit ← babysitter, chainsmoke ← chain-smoker*.

3.2. Nominal composition

The least productive of the four patterns in Table 135.1 is the combination of verb and noun. In this pattern the noun frequently functions as the object of the verb in first position (e.g., s*poilsport*, *pickpocket*, *cut-throat*). Compounds of this type are semantically exocentric. There are, however, also endocentric verb-noun compounds in which the noun is not the object of the verb, as in *cry-baby*, *think-tank*. Nominal compounds with prepositions or adjectives as first elements are rather frequent (*afterbirth*, *backseat*, *downside*, *upland*, *hothouse*, *whitewater*, *clean-living*).

The largest group consists of noun-noun compounds, which are semantically extremely diverse, ranging from determinative compounds through argument-head compounds to various types of coordinative compounds. In general, noun-noun compounds are ambiguous and any compound may in principle receive different interpretations according to context. This may even affect lexicalized compounds, where the institutionalized meaning may be overridden by a contextual interpretation. Thus, given the right situation, a speaker may refer to a fly sitting on the butter as a *butterfly*. Out of context, compounds tend to be interpreted in such a way that a reasonable or typical relation between the two constituents is established. For compounds with a deverbal head, this may often lead to an argumental interpretation of the first element, as in *car sale* 'the selling of cars', but not necessarily so, as evidenced in *garage sale* 'selling from one's garage'.

3.3. Adjectival composition

Adjectival compounds can be productively formed with nouns or other adjectives as non-heads. The interpretation of adjectival compounds follows principles similar to those of nominal compounds. There are determinative, argumental and coordinative adjectival compounds (e.g., *dog-lean*, *structure-dependent*, *brown-grey*, respectively). A common type of interpretation of determinative adjectival compounds involves a comparison (*dog-lean* 'lean as a dog', *blood-red* 'red like blood'). Argumental adjectival compounds often have a deverbal head, as in (object-oriented) *confidence-inspiring* or (subject-oriented) *state-controlled*.

3.4. Verbal composition

Most compounds that are verbs seem to be non-canonical, i.e. derived by processes other than the combination of two bases (Erdmann 1999). We find conversions from nominal or adjectival compounds (*breath test*, *carbon-copy*, *cold-shoulder*, *head-shake*), inverted phrasal constructions (e.g., *upgrade ← grade up*), backformations from nominal or adjectival compounds (de-nominal: *crash-land ← crash-landing*, deadjectival: *tailor-make ← tailor-made*). There are, however, also canonical verbal compounds, which can be determinative (*window-shop*) or coordinative (e.g., *blow-dry*, *stir-fry*, *trickle-irrigate*). Perhaps as a consequence of the wide variety of derivational histories just outlined, nouns, adjectives, verbs and prepositions can all occur as first elements.

3.5. Neoclassical composition

Neoclassical formations are (mostly nominal) compounds in which bases of Latin or Greek origin are combined to form new combinations that are not attested in the original languages.

The list of forms that can be argued to belong to the class of neoclassical forms is long, and it is not entirely clear which elements should belong to this class (cf. Bauer 1998; Baeskow 2004 for discussion). Some examples are *astro-* 'space', *bio-* 'life', *bib-*

lio- 'book', *electro-* 'electricity', *-cracy* 'rule', *-graphy* 'write', *-itis* 'inflammation, disease', *-logy* 'science of'. Most neoclassical bases do not occur as a free form, which is the reason that they are called "combining forms". Some bases (like *morph-/-morph* and *phil-/-phile*), can occur both in initial and final position, while most forms occur either initially or finally. Combining forms can attach to other bound forms (*glaciology*, *scientology*) or to words (*hydro-electric*, *lazyitis*, *morpho-syntax*).

Neoclassical elements can show different segmental and prosodic structures depending on the kinds of element that combine. Initial combining forms that take a word as second element regularly have their main stress on the right constituent (e.g., *astrophýsics*), while numerous final combining forms impose antepenultimate stress on the compound (e.g., *astrólogy*), accompanied by a different vowel quality (e.g., [oʊ] in *astrophysics* vs. [ɒ] *astrólogy*). Combining forms such as *-graphy*, *-cracy*, and *-logy* thus behave phonologically like certain stress-influencing suffixes (such as *-ity*, see section 4).

Characteristically, we find a vowel at the boundary between the two elements. This vowel is orthographically represented mostly as either <o> or <i>. The nature and morphological status of this vowel are not quite clear. Thus, there are compounds where the vowel is independent, as it occurs with initial elements that have no stem allomorph with that vowel, e.g., *film-o-graphy* or *steroid-o-genesis*. In other formations the vowel is part of the first element and cannot be omitted (e.g., *geo-physics/*ge-physics*, *telephone/*tel-phone*). Finally, there are cases with phonologically governed alternations. For instance, consonant-final variants of initial combining forms such as *gastr-* 'stomach' or *morph-* 'form' combine with vowel-initial final combining forms (such as *-itis*, *-osis*) without the addition of a thematic vowel, whereas the combination with a consonant-initial final combining form leads to the occurrence of a vowel (*gastr-o-graphy*, *morph-o-metry*). This alternation is restricted to combining forms, since vowel-final non-combining forms as initial elements preserve their final vowel (cf. *potato-itis*, *big company-itis*).

4. Derivation

Partly due to the history of the language with contact playing a major role, we find a large inventory of native and non-native prefixes and suffixes. English also possesses infixation, but due to its nature as prosodic morphology the reader is referred to section 7 for the discussion of infixation. Suffixes generally determine the syntactic category of the derived word, while the vast majority of prefixes do not. The discussion given below of the numerous suffixes is organized according to the syntactic category of the derivatives. As shown in Plag (2003), most suffixes attach to more than one base category, with affix-particular phonological, morphological, semantic and syntactic restrictions determining the combination of affixes and bases.

Derivation is largely constrained to the three major syntactic categories noun, adjective and verb. These three categories can quite freely derive new words from each other. The formation of adverbs is highly constrained: at best, only two suffixes exist that derive adverbs and these are very selective concerning the kinds of base they can attach to (see the discussion in section 4.4).

In the literature one can often find a distinction between native and non-native affixes, with the two classes being distinguishable through their combinatorial properties and phonological behavior. Recent studies have shown, however, that such a distinction is gradient at best, if not totally misguided (cf. Plag 1999; Plag and Baayen 2009; Zirkel 2010; Bauer, Lieber and Plag 2013).

Unlike prefixes, many suffixes trigger stem allomorphy, resyllabification or stress shift. For example, verbal derivatives in *-ize* involve the deletion of base-final segments under specific circumstances (cf. *summary → summarize*, *feminine → feminize*, see Plag 1999), and nominal derivatives in *-ity* are all stressed on the antepenultimate syllable, inducing resyllabification when possible, and imposing a stress shift when necessary to achieve antepenultimate stress (*prodúctive → productívity*). In spite of attempts to systematize the different patterns of morpho-phonological alternations found in English derivation, there is good empirical evidence that each morphological category comes with its own very particular morpho-phonology (cf. Plag 1999; Raffelsiefen 1999; Lappe 2007).

4.1. Nominal derivation

Semantically, one can distinguish between several large groups of suffixes, i.e. person noun-forming suffixes, event nominalizations (including those denoting results, states, products and means), and nominalizations denoting qualities, collectives and other abstract noun categories. Quite often, the same suffix can cover a wide range of meanings, even transgressing the major groups just outlined.

4.1.1. Event nominalizations

In this section we discuss nominalizations with the suffixes *-ing*, *-ion*, *-ment*, *-al*, *-ure*, *-ance*/*-ence* and *-ancy*/*-ency*. All non-auxiliary verbs have at least a nominalization in *-ing*, and many verbs have one or more additional nominalizations. Apart from *-ing*, the only other suffix that is fully productive in its domain is *-ion* (with its variants *-ation*, *-cation*, *-ion*, *-ition*, *-tion*, *-ution*), which obligatorily attaches to the verbal suffixes *-ize*, *-ate* and *-ify*. The other suffixes mentioned show only few new formations (e.g., *revisal*, *fluctuance*), with *-ment* yielding the highest number of neologisms among them (e.g., *ceasement*, *financement*).

All event nominalizations can give rise to different readings, with the event reading being perhaps the most prevalent. Other readings, also with suffixes whose function is primarily a different one, include results (*acceptance*, *compression*), products (*drawing*, *sculpture*), instruments (*trimming*, *refreshment*), locations (*enclosure*, *residence*), agents (*administration*, *government*), measure terms (*abundance*), paths (*ascendence*, *continuation*), patients (*payment*, *substitution*), and states (*annoyance*, *boredom*). Conversion of verbs into nouns show similar ranges of meanings, but these will be discussed in section 5.

While *-ing* and *-al* seem to attach only to verbs, the other suffixes are more versatile. We find *-ure* on verbs (*erasure*), nouns (*architecture*) and bound bases (*juncture*), *-ment*

on verbs (*assessment*), nouns (*illusionment*), adjectives (*scarcement*) and bound bases (*segment*). With the suffixes *-ance/-ence* and *-ancy/-ency* there is no clear evidence whether the base of the nominal is a verb in *-ate* or the corresponding adjective in *-ant* (cf., for example, *hesitate ↔ hesitant ↔ hesitancy*). Phonologically, *-ion*, *-al*, and *-ure* are quite interesting. The derivatives with the suffix *-ion* are stressed on the penult with pertinent stress shifts if necessary, with the consequence that its productive allomorph *-(c)átion* is often referred to as auto-stressed (*personalizátion*). Deverbal nominal *-al* only attaches to iambic bases (*deníal*, *refúsal*), and *-ure* can trigger palatalization and base allomorphies (*disclo*[z]*e → disclo*[ʒ]*ure*, *join → juncture*).

4.1.2. Person nouns

This section deals with derived nouns denoting agents, patients, themes, instruments, inhabitants, locations, and gendered forms. The pertinent suffixes are *-er*, *-or*, *-ee*, *-ant/-ent*, *-ist*, *-an*, *-eer*, *-ster*, *-meister*, *-arian*, *-ite*, *-ese*, *-ess*, *-ette*, and *-trix*. Most of the suffixes attach to many kinds of bases, including phrases. Consider, for example, the probably most versatile suffix *-er*, which attaches to verbs (*attacker*), nouns (*islander*), proper nouns (*Montrealer*), compounds (*freestyler*), and phrases (*no-hoper*).

   Some of the suffixes are polysemous and can express more than one of the above-mentioned meanings, and many of the above-mentioned meanings can be expressed by more than one of suffixes. For example, agent can be encoded by *-er* (*reader*), *-or* (*investor*), *-ee* (*escapee*), *-ant/-ent* (*student*), *-ist* (*journalist*), *-an* (*guardian*), and (adding an evaluative component) also by *-eer* (*summiteer*), *-ster* (*fraudster*), *-meister* (*ragemeister*), *-arian* (*fruitarian*). Viewed from the formal side, the suffix *-er* can express, for example, agent (*shrugger*), patient (*shooter*), experiencer (*smeller*), instrument (*whaler*), inhabitant (*Londoner*), location (*diner*), and measure (*fiver*).

4.1.3. Quality nouns, collectives and other abstracts

There are many suffixes that create various kinds of abstract and collective nouns, such as *-ness* (*remoteness*), *-ity* (*curiosity*), *-dom* (*heathendom*), *-ship* (*courtship*), *-hood* (*manhood*), *-ery* (*slavery*), *-ana* (*Victoriana*), *-age* (*voltage*) and *-ism* (*careerism*). The suffixes *-ness* and *-ity* prefer adjectival bases (but are not restricted to those), and the respective derivatives denote the quality or state denoted by the base adjective (*blueness* 'the qualtiy or state of being blue', *profunditiy* 'the quality or state of being profound').

   The other suffixes mentioned in the previous paragraph are mostly (but not exclusively) found with nominal bases. The suffixes *-dom*, *-ship*, *-hood* express a similar meaning, which, due to the composition with mainly nominal bases, can be paraphrased as 'the state or condition of being X' (*stakeholderdom*, *advisorship*, *buddyhood*). Meaning extensions to territory, collective or other meanings are not infrequent (*kingdom*, *membership*, *brotherhood*), neither are triplets or doublets with the same base, for example *studenthood*, *studentdom*, *studentship*, and with no apparent difference in meaning.

   The suffixes *-ery*, *-age*, and *-ana* primarily derive collective nouns or locations (*fernery*, *nunnery*, *cuttage*, *leakage*, *Africana*, *Nixoniana*). Nouns denoting fields of study or

forms of doctrine are derived by *-ism*. Again, suffix polysemy is the rule, and meaning extensions are common (e.g., to 'behavior' with *-ery*, as in *clownery*).

4.1.4. Diminutives

English also has a number of productive suffixes that can be categorized as diminutive, as they usually express small size and a specific attitude of the speaker towards a referent (Schneider 2003). The suffixes include *-ie* (*thingy, Josie, howdy*), *-ette* (*kitchenette, sleeperette*), *-let (piglet, baylet, flamelet, trendlet)*, *-o* (*kiddo*), *-s* (*Babs*), *-er* (*rugger*), and *-poo* (*huggypoo*). The majority of bases and derivatives are nominal, but other categories can be found (e.g., *howdy*).

Of these, *-ie* (with its spelling variants <y> and <ey>) is the most productive one. Due to its nature as a prosodic morphological category it will be discussed (together with *-o*) in section 7. The others attach primarily, if not exclusively, to nouns, with moderate productivity.

4.2. Adjectival derivation

There are at least 19 productive adjectival suffixes in English (*-able, -al, -ant, -ary, -ed, -esque, -ful, -an, -ible, -ic, -ical, -ine, -ing, -ish, -ive, -ly, -ory, -ous, -some, -y*), plus the formation of verbal present and past participles, which are readily used as adjectives. Most adjectival suffixes are non-native, and it is with this set that we find intriguing patterns of morphophonological alternations, including stress shifts as well as stem and suffix allomorphy. Let us briefly examine one example, derivatives in *-able*. Apart from some exceptional lexicalized forms (such as *ádmirable*, *préferable*), derivatives with monosyllabic and disyllabic bases do not show stress shifts (e.g., *áskable*, *abúsable*, *chállengeable*). Derivatives with longer base words behave in a peculiar fashion, however. They show no stress shift if their antepenult is light (e.g., *jét.ti.so.na.ble*, *mó.ni.to.ra.ble*), but show optionally stress shift to the antepenult if it is heavy (e.g., *al.lo.cá.ta.ble, a.ro.ma.tí.za.ble, á.na.ly.za.ble/a.na.lý.za.ble, cér.ti.fy.a.ble/cer.ti.fý.a.ble*).

Quite often semantically empty formatives are involved in adjectival suffixation, such as <n> in *Plato-n-ic*, <t> in *aroma-t-ic* or <i> in *baron-i-an* (vs. *republican*), or one finds particular stem allomorphs (as in *assume → assumpt-ive*, *induce → induct-ive*).

Semantically, it is useful to distinguish between qualitative and relational adjectives. Relational adjectives are usually denominal, and they relate the noun which is modified by the adjective to the base word of the derived adjective. Thus an *algebraic mind* is 'a mind having to do with algebra'. Qualitative adjectives, in contrast, encode more specific meanings and show different syntactic properties (e.g., gradability, modification by *very*, predicative use). Of the suffixes mentioned, *-al, -ary, -ic* are relational in nature, although their dervatives may also be coerced into qualitative readings. For example, *grammatical* has a relational sense 'having to do with grammar' (as in *she is a grammatical genius*), and a qualitative sense 'conforming to the rules of grammar' (as in *this is a grammatical sentence*).

The qualitative adjectival meanings include potentiality (*-able*), ornative (*-ed*, as in *leather-soled*), similative (as in *hipsterish*, *Kafkaesque*, *Barbie-like*), possessive ('have X', *respectful*), eventive (*avoidant*, *explorative*, *explanatory*). Meaning extensions for these suffixes are common and depend on the kind of base a particular suffix attaches to and the context the form occurs in. For example, existing attestations in COCA of *brothy* suggest an affix interpreted as 'containing X' ("a hot, brothy bowl of vegetarian pho"), 'tasting like X' ("a well-seasoned filling with brothy undertones"), or 'smelling like X' ("… letting her smell the brothy steam").

4.3. Verbal derivation

Apart from conversion (see section 5) there are three productive suffixes that can derive verbs, mainly from nouns and adjectives. These are *-ize*, *-ify*, and *-ate*. The two suffixes *-ize* and *-ify* show roughly the same range of meanings: locative (*hospitalize*, *tubify*), ornative (*patinize*, *youthify*), causative (*randomize*, *aridify*), resultative (*peasantize*, *trustify*), inchoative (*aerosolize*, *mucify*), performative (*anthropologize*), and similative (*powellize*). Their distribution is governed by prosodic restrictions, with *-ize* attaching to polysyllabic bases, and *-ify* (productively) to monosyllables and to disyllables ending in /ɪ/. The suffix *-ate* is more restricted, productively deriving ornative and resultative verbs, mainly in the domain of the sciences (*mercurate*, *iodinate*).

4.4. Adverbial derivation

Adverbs are formed with the help of two suffixes, *-ly* (*expectedly*, *internationally*) and *-wise*. The status of deadjectival, adverbial-forming *-ly* as derivational is disputed (see, for example, Payne, Huddleston and Pullum 2010 and Giegerich 2012 for discussion) since it displays characteristics of inflection that suggest that *-ly* adverbs are in fact positional variants of adjectives.

The suffix *-wise* derives two kinds of adverbs from nouns. Manner and dimension adverbs (such as *lengthwise*, *sarong-wise)* can be paraphrased as 'in the manner of X, like X, along the dimension of X', while the meaning of the more productive viewpoint adverbs (such as *food-wise*, *language-wise*) can be rendered as 'with respect to, concerning X'.

4.5. Prefixation

There is an abundance of prefixes in English, which modify their bases in various ways. We find quantificational (*bi-*, *demi-*, *di-*, *hyper-*, *hypo-*, *mega-*, *micro-*, *mini-*, *mono-*, *poly-*, *semi-*, *super-*, *tri-*, *ultra-*, *uni-*), negative (*a-*, *anti-*, *counter-*, *de-*, *dis-*, *in-*, *mis-*, *non-*, *un-*), and spatial/temporal prefixes (*ante-*, *circum-*, *cross-*, *ex-*, *extra-*, *inter-*, *intra-*, *meta-*, *mid-*, *out-*, *pan-*, *post-*, *pre-*, *retro-*, *sub-*, *supra-*, *trans-*), often with pertinent meaning extensions, as well as many prefixes with various other meanings (*arch-* 'princi-

pal', *auto-* 'self', *pseudo-* 'false', *re-* 'again', *step-* 'taken over from a previous relationship', *vice-* 'acting in place of'). As mentioned above, most prefixes attach to many different kinds of base and do not determine the syntactic category of their bases. Exceptions to this generalization are the unproductive verbal prefixes *en-* (e.g., *enshrine*) and *be-* (e.g., *befriend*).

5. Conversion

Conversion, the change from one syntactic category to another with no change in form, is a highly productive process in English word-formation. Its theoretical status as lexical or syntactic is debated, as is the treatment of specific kinds of conversion as zero-suffixation, multifunctionality or underspecification. Furthermore, there is the problem of directionality, i.e. of determining which of a given pair of forms is the base and which is the derivative. I will be agnostic as to these theoretical and methodological issues and describe observable patterns of lexical relatedness that are considered as word-formation by most analysts.

5.1. Nominal conversion

Conversion into nouns is especially frequent with verbal bases (*cry*), but can also be based on adjectives (*intellectual*, *subconscious*, *sweet*), adverbs (*forward*), interjections (*oh*), conjunctions (*buts*, *ands*), and phrases (*no-go*). Semantically, the outcome of deverbal conversion into noun is largely determined by the semantics of the base, and can, preferably but not exclusively, denote an instance (*call*, *guess*, *jump*), a location (*dump*), or a person (*cook*, *cheat*, *spy*).

5.2. Adjectival conversion

The analysis of conversion into adjectives is quite problematic as the criteria for determining what an adjective is in English are not uncontroversial. Given that nouns can freely occur in attributive position with other nouns, it is very hard to find examples of nouns that have acquired adjective-like properties that go beyond their occurrence as nominal modifiers, such as modification with *very*, or comparative formation. Clear cases are *fun* and *key*, as in *this is a very fun read* or *ethnicity is a very key factor* (both examples from COCA). Many potential examples are of questionable status (e.g., *abstract*, *moderate*, *perfect* as presumably converted from verbs).

5.3. Verbal conversion

The most productive conversion process is conversion into verbs, with practically no restriction concerning the kinds of bases. We find, for example, nouns (e.g., *bottle*, *file*,

skin, *blockhouse*, *bootstrap*), adjectives (*cruel*, *young*), phrases (*blind-side*, *cold-call*), interjections (*oh-oh*) and conjunctions (*if*). Semantically, converted verbs are indeterminate, with the only restriction being that the derivative denotes an event, state or process that has to do with the denotation of the base.

6. Paradigmatic processes: backformation and local analogy

Many morphological formations in English can be easily analyzed as the concatenation of morphemes and are therefore often used as examples for a morpheme-based, syntagmatic view of morphology. However, there are also numerous complex words in English that do not lend themselves to such an approach and cannot be straightforwardly described without recourse to paradigmatic relationships between words in the mental lexicon.

The perhaps most prominent mechanism in this respect is backformation, which is usually defined as the deletion of a suffix or prefix in analogy to pairs of base and derivative that feature the affix in question. A textbook example is *edit ← editor* on the basis of many such pairs of words (*credit/creditor*, *exhibit/exhibitor*), but other examples can be easily found (*to transcript ← transcription*, *self-destruct ← self-destruction*). Backformation is sometimes described as the deletion of a suffix, but crucially such a deletion necessarily involves analogical pairings of forms with and without the suffix, and is therefore paradigmatic in nature.

As shown in Plag (1999: 206–210), many derivatives in *-ate* are backformations, either from nouns in *-or*, or, more commonly, from nouns in *-ation* (e.g., *escalate*, *formate*, *cavitate*). As already mentioned above, verbal compounds are in their majority backformations (denominal: *houseclean ← house-cleaning*, deadjectival: *tailor-make ← tailor-made*).

Another source of new lexemes is the coinage of individual words on the basis of an analogy to single existing complex words or sets of existing words, as in *house husband* 'a husband responsible for the household work', on the basis of *housewife*, or as in *beefburger*, *cheeseburger*, *shrimpburger* on the basis of (misanalyzed) *hamburger*. Consider also *seaquake* 'an earthquake originating under the sea' or *hangunder* 'the funny feeling you get when you wake up after a night of not drinking and you're not hungover like usual'.

7. Prosodic morphology: clipping, blending, infixation

The term *prosodic morphology* refers to those morphological processes where the relevant category is expressed predominantly or exclusively through prosodic means, i.e. by manipulating the prosodic make-up of the base. In some cases this may involve an additional affix (as in *-y* and *-o* formations or expletive infixation). We will distinguish three major categories: clipping (involving one base and the deletion of phonological material), blending (involving two or more bases) and infixation (the insertion of a morpheme into a base at a prosodically determined position). The first two categories have often been described as being highly irregular, but recent studies (e.g., Bat-El

2006; Lappe 2007) have shown that this characterization is false, once an output-oriented approach is taken.

7.1. Clipping

This category comprises mainly the clipping of common nouns (e.g., *lab ← laboratory*, *pro ← professional*, *celeb ← celebrity*), *-y*-suffixed common nouns *(daffy ← daffodil*, *veggie ← vegetable)*, *-o*-suffixed common nouns (*evo ← evening*, *delo ← delegate*), clipped proper nouns (*Pat ← Patricia*, *Kye ← Hezekiah*), *-y*-hypocoristics (*Pety ← Peter*, *Trishy ← Patricia*). Less common are formations in *-s* (*Gabs ← Gabrielle*) or *-a* (*Gazza ← Gascoigne*).

Semantically, clipped forms are often in-group markers and express familiarity with the concept or referent of the base. Sometimes a clipping may find its way into the speech community at large, in which case the form loses its in-group flavor, as can be observed for *ad* (*← advertisement*). Hypocoristics such as *sweety* or *Frannie* express not only familiarity, but also a (usually positive) attitude towards the person or thing referred to.

There are many similarities between the different processes, but as shown in Lappe (2007), each of them comes with its own set of prosodic and segmental restrictions that regulate the phonological structure of the derivative and the relationship between derivative and base. For illustration, let us take a look at the differences between clipped proper nouns and clipped common nouns. Clipped proper nouns systematically anchor to the first or to the main-stressed syllable (cf. *Patricia → Pat ~ Trish*, *Octavia → Oc ~ Tave*), while clipped common nouns can only anchor to the first syllable (cf. *fraternity → frat*/ **tern*, *mechanic → mech*/**chan*). Proper noun clippings do not preserve certain consonant clusters that are preserved in common noun clippings (e.g., /kt/ or /pt/). Finally, dental fricatives may be optionally substituted in proper noun clippings (cf. *Bartholomew → Bart*), but not in common noun clippings, which always preserve the dental fricative (cf. *catheder → cath*/**cat*).

7.2. Blending

Blends can be analyzed as compounds with at least one constituent having lost some of its phonological material. Semantically, they can be determinative or coordinative, and stress-wise they behave like a single word, normally adopting the stress pattern of one of the two source words. There are two basic patterns observable. In the first, shown in (1a), the first part of the left base word and the last part of the right base word form the blend. This type is most often discussed in the literature and seems much more frequent than the second type, given in (1b), where the respective first parts of the two bases are combined.

(1)   a.   AB + CD → AD (*breakfast + lunch → brunch*)
        b.   AB + CD → AC (*modulator + demodulator → modem*)

In terms of syntactic category, many different combinations are possible, e.g., noun + noun (*beer + nirvana → beervana*), adjective + noun (*British + sitcom → Britcom*), adjective + adjective (*rural + urban → rurban*), verb + verb (*correct + rectify → correctify*).

The formal relationship between the bases and the blend is regulated by a compromise of two competing forces. One is the deletion of material to form a single word, the other the necessity to preserve as much material as possible to relate the blend to its bases. Let us look at some restrictions for illustration. The vast majority of blends have as many syllables as one of the bases, usually the second base (as in *boatel*, *brunch*, *guesstimate*). Counterexamples exist (e.g., *correctify*), but they often involve a considerable overlap of phonological or orthographic material, which facilitates the recoverability of both base words. If there is no overlap between the two bases because they do not share the same segments the location of the cut-off point between the two bases is largely determined by syllable structure. For example, with monosyllabic blends there is a strong tendency to combine the onset of the first word with rhyme of the second (as in *spoon + fork → sp#ork*, see also *br#unch)*. Polysyllabic blends combine syllable constituents or whole syllables in various ways (as shown in Table 135.2, taken from Plag 2003: 124), and quite often the segmental overlap allows for more than one analysis (as exemplified by *boatel*).

Tab. 135.2: Combinations of syllabic constituents in polysyllabic blends

A	D	A + D, examples
onset	penultimate rime and ultimate syllable	*b + oatel* *ch + unnel*
onset and nucleus	ultimate syllable	*boa + tel*
onset and nucleus	coda and ultimate syllable	*Spa + nglish*
onset	syllables	*g + estimate*
syllable	ultimate rime	*boat + el*
syllable	syllables	*com + pander* *guess + timate* *stag + flation*

7.3. Infixation

In English, there is the possibility of inserting expletives in the middle of words to create new words expressing the strongly negative attitude of the speaker (e.g., *kanga-bloody-roo*, *abso-blooming-lutely*). The insertion of the expletive is governed by a prosodic constraint: it must be inserted between two feet. Hence, it is not allowed to interrupt a foot, as shown, for example, by *(ám-EXPLETIVE-per)(sànd) vs. (ámper)-EXPLETIVE-(sànd) (parentheses are used to indicate foot boundaries). Nor may it appear between a foot and an unstressed syllable not belonging to a foot, as shown in *ba-EXPLETIVE-(nána) vs. (bàn)-EXPLETIVE-(dánna) (see Hammond 1999: 161–164 for more detailed discussion).

8. Conclusion

The present overview of English word-formation has shown that, although inflectionally impoverished, this language's word-formation resources are plentiful and lead to patterns of complex words that are quite intricate in form and meaning. These patterns are also a good testing ground for morphological theories, with English word-formation data presenting interesting challenges for concepts such as the morpheme, lexical integrity, lexical strata, or the lexicon-syntax divide.

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136. Dutch

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Abstract

The two main processes of word-formation in Dutch are compounding and derivation. Nominal and adjectival compounding are productive processes, unlike verbal compounding. Phrasal expressions may form constituents of compounds. Derivation is performed by prefixation (in most cases category-neutral), or by suffixation. Affixes have been