MORPH-O-LOGIC-AL-LY ENGIN-EER-ED WORD-S

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Summary

This topic examines the current status of morphology, a branch of linguistics, which is the study of words, their internal structures, and word-engineering. The historical outlook on morphology as a field is provided. Established approaches are referred to (Item-and-Arrangement, Item-and-Process, Word-and-Paradigm). Also, the latest frameworks such as Distributed Morphology (DM) are made reference to. The philosophy chosen for this contribution is the data-driven one. Both word-formation and inflection will be considered. Based on different languages, genetically unrelated (cf. English, French, Polish, Arabic, Japanese, etc), various morphological processes are cataloged, starting from additive affixation, compounding to less clear cases of controversial subtractive morphologies like truncation to zero-morphology as well as conversion. It is assumed that what unifies the operations is (more or less prototypical) linking, combinations, and/or morphological analogy. Finally, based on the natural data extracted, morphological tendencies in English of today are presented in order to be more greatly appreciated.

1. Introduction

The essence of this contribution is that words can not only get stored mentally but must somehow get *engineered* by the speaker of the natural language as well. The speaker fashions them on the basis of analogy and rules of morphology they have at their disposal, especially in moments of crisis (Vennemann 1974), e.g. *fameousness* when

you momentarily forget the word *fame* (N.B. under normal conditions, however, *famousness* will be *blocked* due to the prior existence of *fame* with the meaning that the putative *famousness* would have (Aronoff 1976). In general, so-called 'perfect' synonyms tend to be avoided; thus, if a word pre-exists, adding even a very productive suffix is blocked, e.g. *thief* – **stealer* (from *to steal*). In English literature, however, one can find the phrase *ten stealers* used by Shakespeare; the meaning is not 'thieves' but 'fingers' though. Also, in so-called synthetic compounds (see below) blocking does not take place, e.g. *sheep stealer*. Blocking can also be expressed in the shape of the non-existence of the form due to the existence of a homonymous form, e.g. *?liver* 'somebody who lives' – *liver* 'inner organ.'). The very creative and combining powers of human language allow us to skilfully construct and reconstruct, arrange and rearrange, and modify and remodify linguistic structures at different levels (be it syntax or morphology) in order to communicate effectively and meaningfully. Here, I will be zeroing in on morphology which is the study of words and how they are formed and interpreted (For further reading on morphology, consult introductory textbooks e.g. Bauer (1988), Katamba (1993), Szymanek (1998), and/or more advanced books such as Spencer (1991), Anderson (1992), Carstairs-McCarthy (1992), Spencer & Zwicky (2001), Štekauer & Lieber (2005).). First, the neutral term *lexical-* or *word-engineering* used in this work hints at morphological mechanics that, as will be shown, does not need to be simplex in the least (cf. aeronautical engineering, or genetically engineered plants). Second, the label *engineering* (and not *word-formation* or *forming* words) is chosen as the title on purpose so as not to restrict ourselves to cases which, traditonally in the literature on morphology, are classified as word-formation processes only, i.e. derivation and compounding. Conventionally, inflection has been methodologically excluded from the umbrella grouping of word-formation following Split Morphology Hypothesis (Perlmutter 1988, Anderson 1982, 1992). And, in actual fact, one may postulate that morphology consists of three parts: word-formation (derivation and compounding) and inflection (Aronoff 2000). Inflection (accidence) will be investigated too, its comparison with derivation in particular. Moreover, many other combinatorial forces, processes and aspects of morphology will be surveyed in order to arrive at a more comprehensive morphological inventory. Central in our discussion will be the assumption that morphological *engineering* is done entirely via *combination* (Stonham 1994), which makes it a most constrained version of the morphological inventory. The author, being aware of the fact that it is im-possible to give an exhaustive account of all the issues sketched throughout this contribution, for the morphology-hungry reader, will give literature pointers for further reading throughout. Due to space limitations, certain (equally fascinating) aspects of morphology by itself and morphology in a wider setting (cf. morphology and language acqusition or aphasia, cliticization, etc.) will be omitted totally. Last but not least, in the last section, we will explore some morphologically-engineered innovations (natural English data) that will reveal some morphological tendencies in today's English. This work hopes to shed some new light on the way morphology should be viewed and done.

2. Fashions in Morphology

Historically, the descritpor *morphology* has been used by linguists for over one hundred years as a general desigation for both inflection and word-formation. The name *morphology* in linguistics is attributed to August Schleicher whose 1859 paper was

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entitled *Zur Morphologie des Sprache* (N.B. August Schleicher, in his work, does not explicitly differentiate between inflection and word-formation, although by implication inflection appears to be viewed as a subset of word-formation.). The label was actually adopted from biological sciences where it first appeared around 1830s and where it now stands for the branch of biology that deals with the form of living organisms, and with relationships between their structures (Oxford American Dictionaries (2005)) (cf. Salmon 2000 on the term *morphology*). The designation morphology is evidence of language being (a) structured and (b) living (like the living organisms) thus allowing for language innovations, language change and/or language death. The fact that the term *morphology* in linguistics has existed only for more than a hundred years does not suggest in any way that it is a recent field of study. If truth to be told, the Greeks and Latin grammarians were first touring this unknown territory. Let us survey the issue briefly now (N.B. there are only a few sources supplying reliable information on the historical development of morphology. The issue in this contribution is based on Beard (1995).).

The Stoics (Apollonius, Diogenes Laertes) first defined the word as a bilateral union of the *signifier* and the *signified*. The Greeks did not break down the word since for them the word was the smallest meaningful linguistic element that could not be further analyzed. They established the lexical classes, noun and verb, and looked into gender first. They centered on categories expressed in words, too. The Alexandrians expanded the catalog featuring grammatical categories, defined them in terms of the formal characterictics of their inflectional paradigms and their referential properties. The Latin grammarians followed the Greek tradition, revolving mainly around the categories and etymologies. Major categories were regarded as whole words with flexible ends (cf. today's inflection).

The Middle Ages and Renaissance did not bring about any spectacular breakthrough in the study of the word compared with the Latin grammarians. Reuchlin (1506) eventually proposed the examination of words in terms of roots and affixes, a tradition he had noticed in the works of the Hebrew grammarians. More influentially, Schottelius (1663) broadened Reuchlin's grouping by discriminating between stems, main endings (= derivation), and accidental endings (= inflection), thus, for the first time, acknowledging the dissimilarity between inflection and derivation. It is actually the discovery of Hindi grammarians that generated an interest in formal decomposition. The Indian grammars from Panini's on discriminated between inflection and derivation. They contained rules governing the operation of sublexical forms, e.g. affixes and augments.

Von Humboldt (1836) brought into focus incorporation and infixation to European linguists, outside of the IE family. Since these new types of morphology were not categorically, but formally, separated from other types of morphology, he figured that what is the key feature differentiating languages is the variation in the sound form. These led him to build the first language typology (agglutinative, inflectional, isolational) issuing from formal distinction with morphology being a clear component of grammar. The deep studies of von Humboldt and Schleicher, however, did not end categorial studies. Neogrammarians like Brugmann and Delbrück, in their outstanding research programs at the end of the 19th century, consistently treated both the form and

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the grammatical functional categories related to them.

Strucuralists, however, shifted away from the study of morphological categories to the exclusive study of allomorphy. Their point of departure was the Classic belief that the relation of all lexical and morphological sound to meaning is direct. Saussure even appropriated the Greek labels: *signifier* and *signified*. Baudouin de Courtenay then 'married' the Greek concept of the sign with the newly discovered sublexical units to reorient the definition of the sign from the word as a whole to its sublexical elements. Baudouin put roots, affixes and inflectional endings into a single natural class, which he described for the first time as *morpheme* (part of a word endowed with psychological autonomy and for that reason not further divisible). Saussure, being aware of the problems with Baudouin's defintions, deliberately desisted from the term morpheme and equated his definition of the sign with words only. Yet, Bloomfield further elaborated on Baudouin's explanations. Having shifted the long-established sense of the word as a bilateral sign to the morpheme, Bloomfield put all morphemes in the lexicon, earlier on the storage component of words (Bloomfield 1933) (N.B. the issue of the lexicon is far too comlex to be explored in such a short work as this one; the lexicon deserves a separate entry as it does not only invlove morphology but also lexicography, lexical semantics, psycholinguistics, etc. There have been different proposals concerning the organization of the lexicon (cf. Halle 1973, Jackendoff 1975, Aronoff 1976, Lyons 1977, Norrick 1981, Bauer 1983, Scalise 1984, Wolff 1984, etc.) For example, Bloomfield (1933) calls it *an appendix of grammar*, *a list of irregularities*. Allen (1978) and Malicka-Kleparska (1985) are advocates of two lexicons (*conditional* and *permanent*). Halle (1973) opts for three (a *list of morphemes*, *a dictionary of words* and a *filter*). Currently, one of the latest theory of morphology, Distributed Morphology (Halle & Marantz 1993, 1994), postulates that there is actually no lexicon in the sense familiar from generative grammar of the 1970s and 1980s. DM rejects the Lexicalist Hypothesis which violates the (Strong) Lexicalist Hypothesis that all morphology is in the lexicon (more on the lexicalist approach to word-formation and the notion of the lexicon see e.g. Jensen & Strong-Jensen 1984, Scalise & Guevara 2005). The jobs assigned to the lexicon component are distributed through various other components. For a comprehensive treatment of morphology and the lexicon see also e.g. Aronoff & Anshen (2001).). Bloomfield's comprehensive insight into morphology took in (a) Baudouin's Single Morpheme Hypothesis unifying all sublexical elements under the single category morpheme, (b) the Sign Base Morpheme Hypothesis defining all such morphemes as signs, directly related associations of form and meaning, and (c) Bloomfield's own Lexical Morphology Hypothesis locating all such morphemes in the lexicon, where they are subject to the same copying and selection processes, without differentiating the behavior of affixes from that of stems. At the same time, Bloomfield rejected any significance of semantics to linguistics, which generated considerable interest in Trubetskoi's morphophonemics, ignoring morphological categories. When Nida (1946) finished the first structuralist treatise on morphology, he paid no attention to the categories affixes express. Rather he demonstrated mechanisms for identifying and isolating affixes, and establishing their allomorphy.

However, not all theorists were 'in the dark' about the issues with the structuralist postulates, e.g. zero morphs (Saussure 1916) or morphological assymetry (Karcevskij 1929). In spite of the list of drawbacks troubling sign-based morphology collected by

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Saussure and Karcevskij, among others, neither Structuralism on the way out nor Generativism at its peak attended to the problems of Bloomfield's beliefs. In its first two decades, the Genarative Revolution ignored morphology. It was not until Halle's (1973) work that linguistics started to recognize morphology. This was followed by two influential dissertations on morphology published as Aronoff (1976), and Siegel (1979). Aronoff's path-breaking study focused on word-formation, possible and actual words, word-formation rules, and productivity, among other critical issues. Siegel's theory of Level Ordering brought with it a new way of viewing the phonology-morphology interface, which ultimately grew into Kiparsky's (1982a, b) Level Phonology. Siegel postulated that the affixes in English which never attract stress (and do not trigger other lexical phonological alternations) such as *-hood, -ness, -less, -ful, un-, under-, non-* (Germanic) are attached after stress rules have applied (cf. *párent#hood).* These are the # boundary affixes of *SPE* (Chomsky & Halle 1968), renamed Class II. The + boundary (Class 1) affixes are the ones which do alter stress, such as *–ity, -(a)tion, -al, -ic, -ive, con-, pre-* and they are attached before the stress rules (cf. *parént+al*), which led to a prediction about the linear order of affixes: Class I affixes appear nearer the root than Class II affixes, which is largely true.

Fundamental to the discussion over the link between morphology and phonology is a question in structuralist linguistics, whether morphology is best viewed in terms of Item-and-Arrangement (morpheme-based) or Item-and-Process (lexeme-based) (Hockett 1954). In an IA approach, a word is made up of a string (or tree) of objects; that is, word-formation is the concatenation of morphemes, conceived of mini-lexemes. In an IP approach, forms of a word are the outputs of processes applied to a lexeme. Hockett also alludes to a third paradigm: Word-and-Pradigm (WP) model (Robins 1959). A great example of the Extended WP (EWP) model is Anderson's (1992) A-Morphous Morphology subscribing to the idea that non-combinatorial processes are a necessary part of morphology. The term *a-morphous* itself refers to the notion that morphology is not about morphemes proper but morphological processes (for whom all non-compouding morphology is *a-morphous*).

Although morphology should be at the center of linguistics (Words are at the interface of phonology, syntax and semantics. Words have phonological properties. They articulate together to form phrases and sentences. Their form often reflect their syntactic function, and their parts are often made up of smaller chunks of meaning. Words also contract relationships with each other via their form, i.e. they form paradigms and lexical groupings), the status of morphology today is not privileged at all (for a morphocentric view of grammar see e.g. Joseph & Janda 1988). Indeed, after Richard Janda, it has been called the *Poland of linguistics* (Spencer & Zwicky 2001: 1) – at the mercy of imperialistically minded neighbors: the phonology on the one hand (recent schools Lexical Morphology and Autosegmental Morphology actually started out as Kiparsky's Lexical Phonology and Goldsmith's Autosegmental Phonology focusing primarily on automatic alternations, allomorphy and other phonological issues rather than the elementary questions of morphology), and syntax on the other (cf. Distributed Morphology which adopts a strictly syntactic account of word-formation where structuring of the morphosyntcatic feature primitives is performed by the syntactic structure forming operations). Even some very careful study of the latest trends in linguistics and morphology in particular may give the following impression:

morphology is treated as a trash for what phonology does not wish to be about, or many of the non-phonologically oriented phenomena like subtractive morphology, embarked on theoretically by syntactitians, seem to be undertreated. Yet, there are phenomena characteristic of morphology proper, e.g. blocking, affix ordering, reduplication, etc.

Is morphology enjoying a revival these days? Yes and no! True, many graduate programs in the US start to offer fully-blown morphology courses. Handbooks of Morphology have been published (e.g. Spencer & Zwicky 2001, S tekauer & Lieber 2005). New and improved paper-based journals (*Morphology*, *Word Structure*), and the online journal of morphology start gaining new-found popualrity (www.*MorphologyOnline.com*). Yet, morphological research needs to return to a more balanced study of morphology being a *best-fit* of form, meaning and function. As this contribution also aspires to fit in with the revival of morphology as an equally important field of linguistics (such as syntax or phonology), it mainly zooms in on the cases that go on inside word that do not have exact or close paralles in syntax or phonology, although, from time to time, interfaces will keep running through throughout this treatise on morphology, too.

3. Clarifying the Scene (Terms) & Constructing Morphology (Building Blocks)

To this point I have considered how morphology has evolved over time. I now want to determine the key 'players' of morphology. Morphology is the study of words (Carstairs-McCarthy 2002) and word structures in particular (words as units in the lexicon are the subject matter of lexicology). Words are thus key actors starring in our story of morphology. To both appreciate the fascinating simplicity and complexity of morphology, it is needed to delineate some concepts that are crucial for any morphological inquiry. In what follows now, they will be established.

Cognitively speaking, words are the primary signs of communication, i.e. smallest *free* forms in language. Free forms are elements that can appear in isolation, or whose position is not fixed. Words can be simplex (e.g. *morph*) or complex (e.g. *morphology*). Words can be said to be basic-level categories (phrases and sentences being superordinate-level categories, and bound morphemes being subordinate level categories), hence the primacy of the basic-level. It is the mind that creates categories. And the mind creates categories galore (realized physically in the brain, which is the way the human brain is set up). If this view is accepted (For a discussion on basic-level categorization see e.g. Feldman (2006)), then it is no wonder that on everyday occasions, more often than not, what we first recognize is words (Aronoff 1983). When Polonius asked Hamlet what he was reading, Hamlet came out with: *Words, words, words* (and not phrases, sentences or bound morphemes); it is also words that you get a mental image of (not bound morphemes). Another thing that I think of when I think of words is Sam Goldwym's famous line: *In two words: im possible.* The word seems to be a psychological unit with some psychological reality (Krámsky 1969) (For a cognitive approach to word-formation see e.g. Tuggy (2005).). Apparently, we can do many different things with words; we can choose them, use them, write them, distort them, exchange them, juggle them, sing them, play on them, etc. Plus, remarkably, every parent is familiar with the kiddie query: *What does IT mean?* Where *IT* stands for categories such as: *automobile, candyteria, glitter, Internet, Kleenex, marathon,*

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sexercize, unwind, and not: *–mobile, -teria, gl-, inter-, -ex, -(a)thon, (er)cize,* or *–un* (as in e.g. **What does (er)cize mean?).* Lastly, many affixes such as *-ful/-less* as in today's *hopeful/hopeless, -ship* as in today's *craftsmanship, -ly* as in today's *beautifully* come from full words (free morphemes) anyway. They gradually changed into affixes (bound morphemes) via grammaticalization (a once free morpheme acquiring the function of an affix). N.B. the suffix *–ful* comes from the adjective *full*, which was first utilized in compounds such as *spoonful*. As a suffix, the element *-ful* has gradually picked up the more abstract and generalized meaning of 'possesing some value to a very high degree'. This answers why *–ful* derivatives these days are limited to abstract stems (cf. *hopeful*). The affix *–less* is the opposite of *–ful*. *–less* dates back to Old English *leas* 'without' (cf. *hopeful* vs. *hopeless*). As for the suffix *–ship*, it is less transparent compared with *–ful*. It is related to an Old Germanic form **skap* 'to create' (cf. modern English *shape*, and German *schöpfen* 'create'). It denotes 'the condition or state of being so and so'; attached to nouns it denotes the quality, state or condition the noun denotes (cf. being a *craftsman*). Finally, the suffix *–ly* is derived from Middle English *–lich*, Old English *–lic*, which meant 'body' (cf. present day German *Leichnam* 'body'). As a suffix *–lic* meant 'in a manner characteristic of some person or thing' and, later on, got generalized to mean 'manner'.

Yet, the story is not as simple as it seems. If that was all to be said about morphology (morphology deals with words), this field should perhaps be called *wordology*. The picture is more fuzzy. Take this famous line and focus on *help* below:

(1) *God helps them that help themselves*. (Benjamin Franklin, 1736)

The question imposes itself again and again: how many words of *HELP* there are out there in the sentence above? One or two? On the one hand, a computer word count tool will arrive at an answer that there are two: *helps* and *help* (because they have different shapes). On the other hand, this could be considered from a slighlty different perspective, i.e. forms *helps* and *help* can be said to represent the same word, which may be called the verb *to help.* Descriptively speaking, let us say that *helps* and *help* embody the same *lexeme*, i.e. *HELP* (Lyons 1963, Matthews 1974, Bauer 1988), but two distinct *word-forms,* viz. *helps* and *help* (Matthews 1972). *Lexemes* are abstract units of vocabulary or dictionary words. *Word-forms* are orthographic or phonological forms. One of the word forms which represents the lexeme is conventionally used to name the lexeme. This is often called the *citation form* of the lexeme (Lyons 1977). Citation-forms are forms of the lexemes that are used to refer to them in standard dictionaries and grammars of the language. Still, what about items such as the one in (2) below?

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