The productivity of (non-)productive morphology [1]

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Those of us who work with morphological productivity have fundamental principle which we apply in such discussions: some morphological processes are available, others are not. Those that are available may be used in the creation of neologisms, they are found (relatively) frequently in nonce-formations, they are in some sense psychologically salient, since the processes can be done and un-done (in the sense of comprehended) on-line in real time, and this leads to a relatively high number of types being found in corpora, with a relatively low number of tokens for each type. Those that are not available cannot be used in the creation of neologisms which will gain widespread acceptance in the language community. The result is that all words created with that process are already known (in some societal sense – they may not all be familiar to a given individual). All this being the case, we expect neologisms to be analysable in terms of existing processes, and we do not expect large numbers of neologisms or nonce words to arise which are formed in contravention of the known morphological rules. But what actually happens? In this paper I consider data from dictionaries of neologisms and my own files of observed words, to see how far the expectations are met. I focus on the creation of adjectives in English. The results are surprisingly uniform.

1. Preliminaries

Those of us who work with morphological productivity have fundamental principle which we apply in such discussions: not all morphology is productive. Perhaps it would be better, since I am here talking about 'productivity' in a sense where I am disregarding degrees of productivity and looking merely at whether or not a morphological process has the potential to be used in the creation of new words, to use the term 'available' (Carstairs-McCarthy's translation of Corbin's term). Some morphological processes are available, others are not.

Those that are available may be used in the creation of neologisms, they are found (relatively) frequently in nonce-formations, they are in some sense psychologically salient, since the processes can be done and un-done (in the sense of comprehended) on-line in real time, and this leads to a relatively high number of types being found in corpora, with a relatively low number of tokens for each type.

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Those that are not available cannot be used in the creation of neologisms which will gain widespread acceptance in the language community. The result is that all words created with that process are already known (in some societal sense – they may not all be familiar to a given individual). This item-familiarity (Meys 1975) means that the words concerned may become idiosyncratic through general processes of language change. They may become phonologically idiosyncratic, so that eventually their morphological origin becomes obscured (*husband* from earlier *hus* and *bonda* is a case in point); they may become semantically specialised (as in the unusual instance of *highness* being specialised as a term of address rather than an abstract nominal congener of *high*); their syntactic behaviour may become unpredictable (why, for instance, should it be *He has a preference FOR classical music*, when the norm is for the preposition *of* to mark the argument corresponding to the direct object of the related verb?).

Despite this appearance of a firm division between the available and the unavailable, morphologists tend to agree that there are some words which should not be taken seriously as showing the availability of the process by which they were formed (see Bauer 2001:57-8):

- words produced by patterns used by single individual rather than by the community as a whole are suspect;
- playful formations (Bauer 1983), where words are coined to fit a pattern rather than for their meaning are suspect;
- words used only in headlines are suspect;
- words used only in poetry or other highly literary texts are suspect;
- words which are unique representatives of a pattern are suspect;
- words which are coined as technical terms are suspect;
- some linguists claim that any words which are consciously formed are suspect, though this claim is rejected by others;
- words which arise only in specific domains are suspect (I recently attested a series of words such as *bummage, choppage, mintage* in the language of 11-year-old children, but would not necessarily wish to suggest that these indicate a general productivity of the suffix *-age* in English).

This indicates that *prima facie* evidence for the availability of a particular process in the form of attestation of previously unattested words formed using the process has to be treated with some caution. Nevertheless, it would be worrying if patterns which appear from some evidence to be unavailable were to be attested with some regularity.

It would also be a bit worrying if new words were being formed regularly according to principles which did not appear to have any morphological basis at all, particularly if some regularity of patterning could be observed in these. If morphology deals with the internal structure of words, words are created on the whole from smaller elements which some of us insist on calling morphemes, and word-manufacture *ex nihilo* is rare (Bauer 1983:239), then the production of neologisms without morphological structure is an embarrassment.

Again some caution is required. Some formation types such as acronyms, clippings and blends are well attested, even if they are not morphological (Bauer 1988:39). What would be worrying is large-scale creation where such relatively well-understood principles have not been observed.

2. Neologisms without structure

This report is based on the neologisms listed in two works, Green (1991) and Tulloch (1991). Although these works are now rather out-dated, Green (1991) in particular giving neologisms from 1960 onwards, they provide a corpus of words which are deemed by the editors to have become well enough established in the community as a whole to be worthy of dictionary listings. Such listing is something of a two-edged sword. While it may be taken to indicate a certain degree of institutionalisation for the word listed (and so indicate that individual productivity is not in question), it also implies a certain amount of salience for the neologism. Such salience is unlikely to attach to the most productive types of word-formation, such as derivation in *-ness* or *-ish* in English, with the result that we cannot assume that such listings provide a random sample of words created. This skewing of the sample needs to be borne in mind when evaluating the evidence from such sources.

Of the 4739 words listed by the two dictionaries I examined a list of 105 which, on a first pass, had obscure or uncertain etymologies or where the process of formation was not clear. Of these 105, I wish to discuss here only a handful, most of this subset having proved to be of perfectly regular formation – which implies that the vast majority of the words listed in my sources are formed in ways which are perfectly standard (including the extension of the meaning of an already existing word). In general, therefore, there is little in this data set to disprove the productivity hypothesis.

First of all, there are perhaps rather more words which are prob-

able cases of word manufacture than might be expected given the comments above. Those which are almost certainly instances of word manufacture are *Alar, boff, byte, Cowabunga, Dalek, frug, gonk, grok, Librium, quark, zit,* and those which may be cases of word manufacture are *dweeb, grebo, Mandrax, scam, wonga, yips, yonks, Zidovudine*. The number of drug names and words from science-fiction here (even the two from science fact!), and the slangy style level of many of the other words, suggest that the list is not an unreasonable one. Word manufacture may be rare, but it is found particularly in a very few domains.

Respelling and reanalysis account for another few words. *Earcon* (contrast *icon*), *herstory* (contrast *history*), *monokini* (contrast *bikini*) are all indicators of a reanalysis of an original word on the basis of its spelling and/or pronunciation. These are probably all very conscious formations. *Ceefax* and *Filofax* are deliberate respellings (of 'see facts' and 'file of facts' respectively) as trade names. *Nybble* is a respelling of a punning reference: it is also spelt *nibble* and refers to a sub-part of a computing *byte*. *Microlyte* is probably a respelling of *micro + light*, in which case the formation is odd. And *skoob* (a deliberate reversal of the word *books*) is not only the creation of a particular individual, it is a technical term in art. While such 'back slang' is attested in other words of English (e.g. *yob* and *yennep*: see Görlach 2002:121), the reversal of a hierarchically structured string is precisely the sort of linguistic operation which is not supposed to be possible.

There are two instances of words formed by consonant substitution: *Muppet* (from *puppet*) and *woofter* (from *poofter*). (Some people see *Muppet* as a blend of *marionette* and *puppet*, but Henson apparently denied this.) Consonantal apophony is not usually listed as a method of word-formation in English except in the *belief / believe* cases (and that formation-type is probably no longer productive). It is not clear to me whether there is any pattern to this, whether it is more common in colloquial usage, whether the choice of bilabial consonants is systematic (as it may be in rhyme-motivated compounds such as *namby-pamby*), or whether the apophony has any independent meaning. This might be worth investigating if rather more examples could be found.

The major problems, however, are caused by just four words: *dontopedalogy, humungous, krytron* and *Quaalude*. Two of these can be relatively easily explained. *Dontopedalogy* was apparently coined by HRH The Duke of Edinburgh to mean 'the art of putting one's foot in one's mouth'. It has not caught on. While mixtures of Greek and Latin are not usually rejected for that reason alone (consider *televi-*

sion), the formation makes sense only if it is created from *donto +
pedal + logy* (cfr. *mammalogy*), which does not match the semantics.
We can thus see this as an incompetent formation by a single individ-
ual. *Quaalude* is a trade name for the drug *metha**qual**one*, from
which the name is apparently derived, but the *-lude* element cannot
be assigned to the same formative as occurs in words like *ludic* or
prelude because of the meaning. We appear here to have a meaning-
less formative, so that *Quaalude* tends towards word manufacture –
not unreasonable given that it is a trade name. *Humungous* (also
spelt *humongous*) and *krytron* both look as though they are made up
of meaningful elements. However the *-mung-* in *humungous* and the
-tron in *krytron* are apparently without etymon. The first is simply
meaningless, *-tron* has at least three meanings ('subatomic particle',
'particle accelerator', 'thermionic valve'; Pearsall 1998), none of which
seem appropriate here, in that *krytron* means 'high-speed solid-state
switching device' (Pearsall 1998). Note also that the origin of the *kry-*
element is in doubt, some suggestions being that it comes from *kryp-
ton* or *cryo-* (Tulloch 1991) although neither would appear to make
sense here. While in both these cases we could shrug them off as
word manufacture, word manufacture from meaningless elements
which are homophonous with existing word-formation elements is
inimical to the whole notion of productivity as it is usually expressed.
These cases may be so rare as not to be particularly damaging; they
are nevertheless worrying.

3. Attested but presumed unavailable patterns

In this section I should like to discuss briefly four adjectival suffix-
es in English: *-al, -an, -ic* and *-ly*. The data that I will adduce comes not
only from dictionaries of neologisms and the like, but also from my own
files of examples of word-formation, collected over a number of years.
Evidence that these are not productive comes from the fact that no relev-
ant words are found in Algeo (1991) or in Knowles (1997).

3.1. The suffix -al

Bauer & Huddleston (2002) comment that this suffix is produc-
tive when following any one of *-ion, -ment* or *-oid*, but not elsewhere.
That excludes *-ical* which they treat as a separate affix. This may be
a little bit too restrictive, especially with regard to scientific words,
but it is not obviously so.

Attested examples are:

(1) a.   ecclesial (Cannon 1987)
     b.   patrial (Green 1991)
     c.   the rhymal (Charette 1989)
     d.   spousal (Biederman 1988:131)

Of these, *ecclesial* is a word much used by Milton, *patrial* is a meaning extension to a seventeenth century word, and *spousal* exists from the sixteenth century, albeit with the meaning 'nuptial'. So *rhymal* is the only serious contender here, and that is produced by someone who is strongly influenced by French (where *-al* may not be subject to the same restrictions).

3.2. The suffix -an

Marchand (1969) comments that *-an* is productive only in when added to geographical names, and even then not always (he points to variation between **Alabaman** and **Alabamian**). The variant *-ian* is clearly productive outside these domains.
     Attested examples are:

(2) perestroikan (Tulloch 1991)

3.3. The suffix -ic

The suffix *-ic* needs to be distinguished from *-ical* and *-istic*, and the nominal *-ics*, all of which are clearly productive. Simple *-ic* may be productive within scientific domains, e.g. within chemical word-formation, and other places where it is attached to a obligatorily bound base (e.g. in *shopaholic* etc) but is not clearly productive outside such domains.
     Attested examples are:

(3) a.   filmic (Lustbader 1989:405)
     b.   fistic (Parker 2000:25)

Both of these are well-established, *fistic* from the nineteenth century, *filmic* from 1929.

3.4. The suffix -ly

The functions of adjectival *-ly* have largely been taken over by

-like (with which it is etymologically cognate). The suffix *-ly* is clearly productive in the formation of adverbs, but not in the formation of adjectives.

Attested examples of adjectival *-ly* are:

(4) a. witchly (Gardner 1974:67)
     b. uncle-ly (Lyall 1985:165)

3.5. Discussion

Isolated examples from literature run the risk of showing patterns of individual productivity, so that single examples are probably not damaging to the productivity hypothesis. It is difficult to know how to deal with words which were once established and now are extremely rare. There are at least four possible interpretations:

a) Because the words are listed in dictionaries, they remain available to the class of people who read dictionaries, and thus can be resurrected at any time (not necessarily with the same connotations as they had in their original incarnation).

b) The words may be in use, and just so rare that they are in the authors' active vocabularies, but not in mine. I thus perceive these words (wrongly) as neologisms.

c) They may be genuine neologisms deliberately formed (in the case of the examples presented here) to avoid the connotations attached to an established adjective by extending an existing pattern of word-formation. Alternatively, they may be created by a more or less random selection among existing adjectival suffixes in an attempt to form a new adjective where none of the productive processes appears to give an existing or euphonious word. While in principle this can give rise to new productivity for a particular morphological process, we would ideally like to see evidence that similar strategies are being adopted by a number of speakers before we counted such words as hard evidence of productivity.

d) The words could, indeed, be rare examples of errors whereby individual writers have misinterpreted societal patterns as indicating productivity. The other side of this coin is that I could be wrong in my assumption that the patterns are not productive – something that would be easy enough to get wrong, particularly if the patterns are only marginally productive or are becoming productive again after a period of latency.

4. Conclusion

In an earlier publication (Bauer 1998) I drew attention to the fact that various word-formation processes appear to blend into each other and not have clear-cut boundaries between them. Although I may not have been using the same (unexpressed) criteria for a 'clear' process of formation in this paper as I did in that earlier one, my expectations were that the border-line blending would lead to a relatively large number of unclassifiable formations. While such formations would be explicable in terms of analogies with individual established lexemes, they would not easily be explicable in terms of productive, rule-governed behaviour.

The low number of relevant formations I found for this paper was thus something of a surprise to me, albeit a pleasant one. While it may not be possible to view the paucity of this data as evidence in favour of the productivity hypothesis, at least it suggests that the evidence against that hypothesis is weaker than might have been expected. I chose to look for unexpected productivity in adjectives precisely because I believed that I had seen sufficient examples to make an interesting case against the productivity hypothesis – this turns out not really to be the case.

I would speculate that the strength of evidence against the productivity hypothesis would not necessarily be constant across English word-formation patterns. It seems plausible that neo-classical word-formation is less well done because it involves a certain degree of bilingualism or conscious reanalysis of known words. If this were true, and there is no evidence here that it is, it would bring us back to Schultink's hypothesis (which I am otherwise not well-disposed towards, see Bauer 2001:66-71) that forms which are created consciously cannot be created productively. The fact that no such evidence arose in the data considered here may, therefore, be accepted as tentative support for a more homogeneous view of word-formation, in which productivity works across the board.

Finally, in view of discussion at the conference at which this paper was originally presented, I should say that there seems to be some dispute among morphologists about what it is that is productive: whether it is, for example, a particular pattern of suffixation, or a particular semantic pattern at some level of generality, or a particular way of creating grammatical forms (such as nominalisation, adjectivalisation, etc.). While these are clearly not independent, in that semantic and grammatical patterns are all filled by particular morphological processes, we need to have some way of deciding which of

these we should be considering on any given occasion. In this paper, by looking at neologisms in general (so the use of individual morphological patterns) and selected methods of adjectivalisation (so the filling of a particular grammatical requirement), I could be accused of trying to have my cake and eat it too. I would reject any such charge by claiming that here I am really, in all cases, looking at individual morphological processes rather than at the productivity of adjectivalisation in general. However, that step was taken by habit and default rather than because I had spent time considering the question and had arrived at a motivated decision to look at data from that point of view. I am not convinced that this has invalidated my results, but if it has, I should like to see a careful argument on this subject, explaining the problems with considering individual morphological processes as well as the benefits of looking at larger patterns. I suspect that both are justified, but under different circumstances. Even that is no more than speculation at this stage, and it would be good to have some specification of what those circumstances might be.

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Note

[1]   This is a revised version of a paper presented at the 6th ESSE conference in Strasbourg, September, 2002. This version has benefitted not only from the discussion at that conference, but from some data discovered after the event. If not all comments made at the conference have been built in, I apologise to the commentators.

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