

The importance of marginal productivity

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Marginal productivity is not usually of great interest to morphologists, but in this paper I argue that it is of vital importance in the way in which morphology can be exploited in a language – even if it is not always easy to draw the line between marginally productive and unproductive. In particular I look at patterns of verb-Ablaut, and raise an important problem for descriptive linguists and psycholinguists alike.

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1. Introduction

In this paper I consider the importance of marginal productivity for morphological study. Typically, the focus of morphological study is on the most productive morphological processes, and not on the least. However, I shall argue that, although it can be difficult to tell the difference between marginally productive and unproductive, the distinction is important in considering the way the language is developing.

I shall consider two short examples first, setting the scene, and showing why the difference between marginally productive and unproductive is so important, but the focus of the presentation will be on verbs like *swim* and verbs like *swing* and how their past tenses are formed, and how their past-tense formation has developed over a number of centuries. I shall also point out that there is a major challenge for linguists who wish to deal with marginal productivity seriously, which, since marginal productivity curbs major productivity, should be all morphologists.

2. The case of nominal *-th*

Nominal *-th* as in *warmth*, *length*, *truth* is cited by many morphologists (including me) as a clearcut case of non-productive morphology. Others raise the problem of *coolth*. *Coolth*, they say, and this is reflected in the *OED* entry for the word, is reinvented from time to time by individual speakers, perhaps by analogy with *warmth*. But if new speakers keep inventing it, then *-th* must be productive.

The argument for a non-productive *-th* needs to be spelt out to counter this view. According to the *OED*, *coolth* is first attested in the sixteenth century, at a period when the suffix *-th* was uncontroversially productive. It has never been a very frequent word, and certainly in modern times seems to be considered either funny or self-consciously literary. There is just one hit for *coolth* in the BNC, and the *OED* lists four occurrences from the twentieth century, at least one of which is clearly intended as a joke. However, despite the size of the BNC or, for that matter, the implicit corpus behind the *OED*, what is found in these works is only a sample of what speakers hear. Over ten or twenty years of intense use of English, it would be surprising if a reasonably educated speaker (not necessarily all speakers, note) had not come across the word, probably multiple times. If this is the case, there is no need to postulate reinvention.

More telling, perhaps, is the fact that other forms in *-th* are not found. Such a statement is extremely dangerous, and it only takes one example to prove them wrong, but most of the hits for words in *-th* in Google are either (a) names, (b) errors or (c) already listed in the *OED*. Occasionally a word in *-th* is found that does not have the *-th* as a morpheme, e.g. *bluth* as a blend for *Blue Tooth*.

So, overall, it seems to me that *-th* is not productive any more, but of course it could always become productive again. In any case, it is notoriously difficult to prove a negative: we cannot prove the moa to be extinct by failing to see a moa. So any such conclusion is inevitably provisional. Nonetheless, this example shows that the line between marginally productive and unproductive can be a difficult one to draw.

3. Latin and Italian plurals in *-i*

Both Latin and Italian have provided nouns for English which have plurals in *-i*. The two behave rather differently in English, though.

A number of Italian plural forms come from the field of music, such as *bassi*, *concerti*, *libretti* and *tempi*. These are genuine plurals, although there are native alternatives for all of them. The range of such plurals is rather unclear, though: *celli* is rare, even among musicians. *Spaghetti*, *confetti*, *graffiti* are Italian plurals, but not English plurals: these are all mass nouns in English, even if we have the specialized term *graffito* as well. The word *zucchini* is fundamentally singular, though it may also be used as a plural. *Panini* is definitely singular. And *stiletto* never (as far as I am aware) has an *-i* plural in English.

English has a number of genuine plurals from Latin including *alumni*, *bacilli*, *cacti*, *fungi*, *nuclei*, *stimuli*. Most of these have regular plurals as well, and note the variation in pronunciation in the ending in the words listed here, the final <i> sometimes being pronounced as /i:/, sometimes as /aɪ/. There are also a number of apparently parallel Latin nouns which do not (in general terms) have an *-i* plural, including *bonus*, *campus*, *circus*, *impetus*, *sinus*.

The difference between the Italian forms and the Latin forms is that the Latin *-i* may be extended to words where it did not belong etymologically, indicating a certain degree of productivity for that suffix.

- Octopuses do not just learn by experience, and by copying other *Octopi* (BNC) [Note the variation in plural forms within a single sentence. The *-us* in *octopus* is not, etymologically speaking, a Latin inflection, but part of a Greek root, whose plural would be *podes*, as in the next example.]
- *Octopodes* offer no great advantages for the study of nerve transmission (BNC)
- Jewish *Censuses/Censi* in 18th and 19th century (<http://www.toledot.org/lecture%20LA%20Censi.pdf>) [Note the insecurity about the plural form encapsulated in this title. *Census* is a 4th declension noun in Latin, while the *-i* is a 2nd declension ending.]
- Faculty *Prospecti* listed below (<http://international.nmmu.ac.za/Courses/Faculty-Prospecti>) [*Prospectus* is a 4th declension noun in Latin, while the *-i* is a 2nd declension inflection.]
- Are *Loti* stealthier to Radar than most cars? (<http://www.lotustalk.com/forums/f164/loti-stealthier-radar-than-most-cars-208962/>)

[*Lotus* is the brand-name of a British sports car manufacturer. The plural of the flower *lotus* is generally *lotuses*, although *lotus* is a 2nd declension Latin noun]

- My [Macquarie Dictionary](http://en.wiktionary.org/wiki/Talk:platypus) gives *platypuses* first, followed by *platypi* (<http://en.wiktionary.org/wiki/Talk:platypus>) [See the notes with *octopus* and *census* above.]
- [Toyota](http://www.autoblog.com/2011/02/21/toyota-says-plural-of-prius-is-prii/) has officially embraced ‘Prii’ as the plural of [Prius](http://www.autoblog.com/2011/02/21/toyota-says-plural-of-prius-is-prii/). (<http://www.autoblog.com/2011/02/21/toyota-says-plural-of-prius-is-prii/>)
- [bogi] Noun: someone who is bogus in more than one way. plural of bogus. (<http://www.urbandictionary.com>) [*Bogus* is not Latin, but a nineteenth-century invention in English. Note also that something which is a pig ‘in more than one way’ (e.g. by being porcine and dirty) is not called *pigs*.]
- Driveways were filled with Cadillacs, *Lexi*, Beemers and Benzes. (Fredrickson, Jack 2013. *The dead caller from Chicago*. New York: Minotaur, p. 194) [Again *Lexus* is a brand-name, and this is presumably a joke. Compare also *Lotus* and *Prius* above.]

A Latin type *-i* is a suffix of English – it is productive in English, while Italian plural *-i* appears to arise only in places where there is some bilingual input, and could be a matter of code-switching. There may not be many nouns to which the Latin type of *-i* is productively added, but it is part of the system of English in a way that the Italian marking is not. That is an important fact about English plurals. For the morphologist it indicates that Italian *-i* is not productive, while Latin *-i* is marginally productive, and the distinction is important for the way in which speakers of English behave.

4. *Swim* and *swing*

Swim and *sing*, although phonologically very similar, conjugate according to different patterns, such that the point of distinction is what happens in the past tense form. In standard varieties of English, the past tenses are *swam* and *swung*. I shall refer to verbs which conjugate according to these patterns as *swim*-verbs and *swing*-verbs. The two patterns are, and have long been, in competition with each other, and some verbs conjugate, even within the standard, variably with either pattern: *shrink* is such a verb (Quirk et al. 1985). Once we look beyond standard varieties, there is much more variation between these patterns.

Bybee and Moder (1983) claim that the *swing*-verb pattern is productive in modern English, but not the *swim*-verb pattern. Assuming that they are correct, then that productivity is only marginal, though important.

The *swim*-verb pattern certainly used to be productive. On the basis of the *OED* we find that

- *Ring* was a regular verb until 14th C.
- *Sing* had *sung* as a past tense until 18th C. (and for many speakers still does)
- *Stink* had a past tense *stunk* until 18th C.
- *Slink* had sporadic *slank* in 18th C.

So to the extent that Bybee and Moder are right, it must be a relatively recent change in English. However, the *OED* also shows us that there is a lot of variation in the past tenses of *swim*-verbs and *swing*-verbs.

- *Ring* is still sporadically regular (and not only when denominal)
- *Sink* varied in 18th C.

- *Slink* was often regular in 18th C.
- *Fling* has occasional dialectal *flang*

We can also discover that the *swing*-verb pattern has been (marginally) productive for some time:

- *Slink* moved to *slunk* post 18th C.
- *Spin* had *span* until 15th C.
- *Stick* was weak until 15th C.
- *Swing* had *swang* until 16th C.
- *Win* had *wan* until 16th C.
- Modern NZE (according to my students): all *swim*-verbs take on *swing*-verb pattern in speech

So it appears that the *swim*-verb pattern and the *swing*-verb pattern have been in competition for several centuries. At the moment, it seems that only the *swing*-verb pattern is productive, though on the basis of past variation we have to assume that such a pattern is not necessarily definitive. That lack of security is related to the well-known fact that old morphological systems leave traces behind them in remnants, and those remnants can, at any time, be revitalized and turned back into a productive pattern. Some minor evidence of this can be found in the fact that J.K. Rowling mostly uses *span* as the past tense of *spin* in the Harry Potter books, although whether that is a remnant of an earlier pattern or a reintroduction of a largely dispreferred pattern is not necessarily clear. Note that while Rowling's use of *span* is notable, she is not the only person to use this form:

- (1) Harry's broom span off course (J.K. Rowling 1997. *Harry Potter and the philosopher's stone*. London: Bloomsbury: 138)
 I [...] span clear and hit the door and went through. (Adam Hall 1979. *The scorpion signal*. Glasgow: Fontana: 79)

5. Modeling the change and discussion

When it comes to modeling this change, Bybee and Moder see it as a generalization of pattern which looks something like that in (1)

- (2)

$$C (C) I \left\{ \begin{array}{l} [\text{nasal}] \\ [\text{velar}] \end{array} \right\} (C) \#$$

Any verb whose base-form fits this template is under pressure to change its past tense form to one with the vowel [ʌ] replacing the vowel [ɪ]. However, there are a number of other pieces of evidence which might suggest that the actual pattern of generalization is rather different.

- non-standard *drug* as past tense / past participle of *drag*
- non-standard *done* as past tense of *do*

- non-standard *snuck* as past tense / past participle of *sneak*
- non-standard *run* as past tense of *run*
- *hung* as past tense of *hang* in all senses
- standard *cut, shut, thrust* with past tense /past participle of same form

Examples such as these, when added into the mix, suggest

- a) The vowel in the present tense or base form is not criterial to what is happening in the past tense (*drag* and *hang* are particularly important evidence here)
- b) There is, as noted by Anderwald (2009), an overwhelming tendency in English for the past tense and the past participle to have the same form (all the examples just above illustrate this)
- c) There is a new generalization here, which is that the vowel [ʌ] in the past participle with no *-ed* suffix implies the vowel [ʌ] in the past tense with no *-ed* suffix (*run, do* and the productivity of the *swing*-pattern verbs make this point)

This raises a very important challenge for linguists. If many (most?) linguists (including me) have believed that the generalization for *swing*-verbs is as set out in (1), and yet that is not what speakers are using, how are we to discover what analogies are being used (or, to phrase it differently, what the psychologically real generalization is)? In turn this raises the question of how native speakers who are not linguists know what the appropriate generalization is. The currently fashionable answer is that it has to do with frequency. But frequency cannot be the entire answer, because if it were, all verbs would be regular. We have to know what it is that we are counting the frequency of. Not only have Bybee and Moder (and I) possibly seen the wrong generalization (although this does not challenge their results), we have also considered the group that gives *cut, shut* etc. as a separate and irrelevant group, while I am now suggesting that it might not be irrelevant. The implication may be that individual verbs can belong to several base groups for the purposes of analogy. Moreover, if the suggested generalization above is a true one (or a relevant one, or a psychologically real one) why would we base past tense forms on the less frequent and more marked past participle form, rather than the other way round – as is seen, for instance, in the use of *hid* as a past participle?

Marginal productivity is not only important for providing an accurate description of what is possible in English morphology, it also raises a set of new questions for morphological theory.

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