

# Italian Journal of Linguistics Rivista di linguistica

volume 15, numero 1, 2003

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Le CONVENZIONI TIPOGRAFICHE sono consultabili presso <<http://alphalinguistica.sns.it/RdL/stylesheet.html>>.

Periodicità: semestrale. Abbonamento 2003: Italia € 67,00; Estero € 83,00 (spese postali comprese).

Per abbonamenti, cambi di indirizzo, informazioni indirizzare a: Pacini Editore - via Gherardesca, 1 - 56121 Ospedaletto (Pisa), Italia (Tel. 050/313011; Fax. 050/ 3130300) [www.pacineditore.it](http://www.pacineditore.it).

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The STYLE SHEET is available at <<http://alphalinguistica.sns.it/RdL/stylesheet.html>>.

Periodicity: twice a year. Subscription rates for 20037: Italy € 67,00; elsewhere € 83,00 (packing and surface mail postage included). Advance payments required. Available on standing order.

All communications concerning subscriptions should be addressed to the Publisher: Pacini Editore - via Gherardesca, 1 - 56121 Ospedaletto (Pisa), Italy - Tel. +39/050/313011 - Fax. +39/050/3130300 - [www.pacineditore.it](http://www.pacineditore.it).

Autorizzazione del Tribunale di Torino n. 3948 del 9.6.1988; direttore responsabile: Pier Marco Bertinetto.

Impaginazione e stampa: Pacini Editore - Ospedaletto (Pisa)

Publicato con il contributo del CNR

## Introduction

Mark Aronoff & Livio Gaeta

The study of morphological productivity has been a furtive activity among linguists since its inception, for good reason. While the modern academic field of linguistics has always thrived on methods and phenomena that are discrete, all-or-none, rather than continuous, more-or-less, productivity is inherently continuous, and thus fundamentally incompatible with the basic methods of the field.

The simplest mechanism for dealing with phenomena that are incompatible with societal norms is denial. In linguistics, the denial of variable productivity has taken several forms. The most obvious of these has been to take advantage of the distinction between linguistic competence (grammar) and linguistic performance (language use) by declaring that productivity and other gradient matters are part of performance rather than part of competence. But when two matters are truly independent, then we predict that they should have no effect on one another. Especially if language itself (grammar) is conceptually prior to its use, then there should be no feedback from use to language. If we find feedback from productivity to grammar, then either grammar and use are not separable (the more radical conclusion) or (the more conservative conclusion) productivity is in fact not a matter of use and hence grammar includes at least some variable phenomena. But it has been shown time and again that differences in productivity are indeed reflected directly as differences in both meaning and form: the individual pieces of more productive processes are more easily identifiable both phonologically and semantically than those of less productive processes, all of which makes it difficult to deny that productivity is linguistic.

In order to isolate differences in productivity from other factors, we must find sets of what we call rivals, morphological processes that have the same function and differ primarily in productivity (The fact that such sets are quite easy to find is in and of itself a striking indicator that these sets must be serving some purpose.). The best-known example set of rival morphological processes is that comprising the three English suffixes *-ness*, *-ity*, and *-th*. Of the three, *-ness* is the most productive overall and is therefore often termed the general

default, while *-th* is so unproductive that we might be tempted to dismiss it from consideration though, as we will show shortly, it is unwise to do so.

What is most remarkable about the first two suffixes is that they permit the formation of pairs of word tokens that differ precisely in the two suffixes: *productivity* and *productiveness*, for example. Let us call these forms  $Xity$  and  $Xness$ . It has been shown that, in general, for the set of all pairs  $x_iity$  and  $x_iness$  (where  $x_i$  is an adjective), there are more words of the form  $x_iness$  and, for any given pair  $x_iity$  and  $x_iness$ , the meaning of the latter is more directly predictable from the meaning of  $x_i$ . Also, given a large enough corpus, we will encounter more words of the form  $x_iness$  occurring only once in the corpus than words of the form  $x_iity$ . Finally, native speakers of English are more likely to accept a word of the form  $x_iness$  than one of the form  $x_iity$  and will do so more quickly. These and other findings point to the conclusion that *-ness* is more productive than *-ity*.

For a linguist raised on the all or none, it is very tempting to try to encode the difference between a more and a less productive process in absolute terms as one between a productive and an unproductive process, but the case at hand shows this strategy to be ill-advised. First, there is the problem of *-th*, which truly is unproductive. If we don't want to relegate *-ity* to the same status, then we have to define some status intermediate between productive and unproductive, which raises suspicions about our whole attempt to reduce the continuous to the discrete. Second, it turns out that *-ity* is not always less productive than *-ness*. Although *-ness* is the default process for forming abstract nouns from adjectives in English, after certain suffixes, notably the productive Latinate suffixes *-al* and *-able* or *-ible*, *-ity* is more productive, according to the criteria noted above. Thus, if we take the adjective *computable*, formed from *compute*, and want to further form an abstract noun from this adjective, we will almost certainly form *computability* instead of *computableness*. Similarly for other productively formed words ending in *-able*. Only if the base *-able* word is itself not productively derived can *-ness* ever be the preferred suffix, as it is, for example, with *comfortable*, which is not transparently related to the verb *comfort*.

To return to our main point, if *-ity* is sometimes more productive than *-ness*, then it will not do to simply call *-ity* unproductive and *-ness* productive, since the relative ranking of the two sometimes goes one way and sometimes the other. But once we acknowledge that productivity can be gradient, then these facts are no longer puzzling.

More radically, it may even be useful to abandon the notion that

the two suffixes are rivals for the same slot, a notion that is rooted in the Saussurean doctrine that language must always consist of oppositions (which is also most compatible with the realizational framework that has dominated most approaches to inflection in the last decade). Instead, we can view each of these suffixes as a separate item, a lexeme of sorts, whose productivity varies depending on its morphological environment, but entirely independently of what we had previously treated as its rival. If *-ness* is a default, that is because it happens to be productive when there is no specific morphological environment. On such a view, two suffixes are rivals only secondarily, in those environments where both reach a sufficient level of productivity to clash with one another.

But if we allow the continuous view to intrude to the point that each morphological process may vary in productivity all by itself along a completely continuous scale, are we not abandoning the Saussurean enterprise entirely? This same question emerged over thirty years ago, with the advent of William Labov's variable rule. One of us remembers simply refusing as a graduate student to admit the possibility of such a concept, which has now also emerged in optimality theory as the variably weighted constraint. We must understand, though, that what varies continuously is not the rule or process or constraint, but rather the probability of its application. In general, we may still maintain the position that linguistic entities are defined in terms of discrete oppositions, but that their contextual distribution is determined probabilistically. The acknowledgment of probabilistic generalizations thus does no more harm to the discrete aspects of language than statistical mechanics does to those aspects of physics.

Once we admit that productivity is both part of language and probabilistic in nature, then we must also admit new methods to the study of language, some of which are admirably applied in the articles in this volume. One can also hope that these methods will be extendible to other aspects of language. Time will tell. In any case, the study of productivity proves once again that when we overcome denial or taboo, we learn that what we have feared so long is not really frightening, indeed that it can lead to greater pleasure and knowledge. As the articles in this volume all show, the acknowledgment of the probabilistic nature of morphological productivity leads not into perdition, but rather into a greater understanding of the wonders of language. And that, after all, is what linguistics is about.

*Mark Aronoff & Livio Gaeta*

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