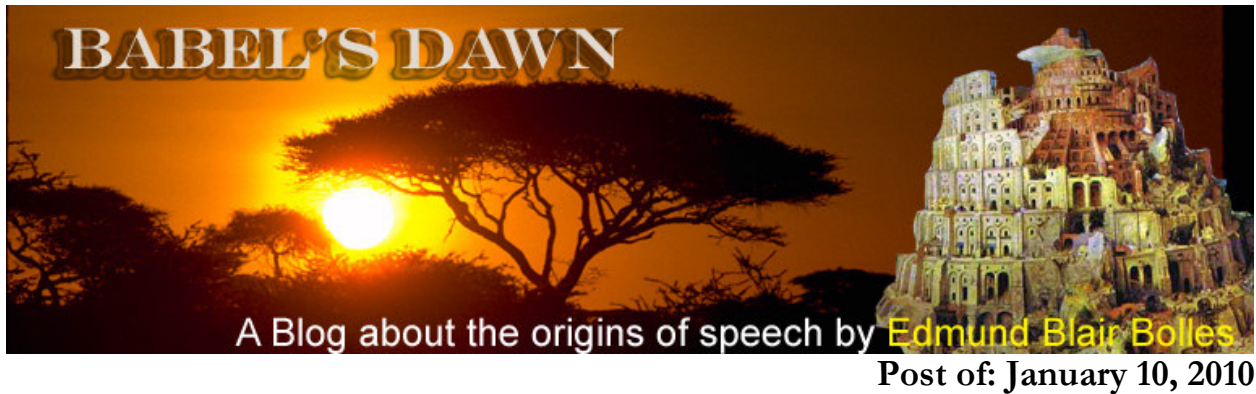
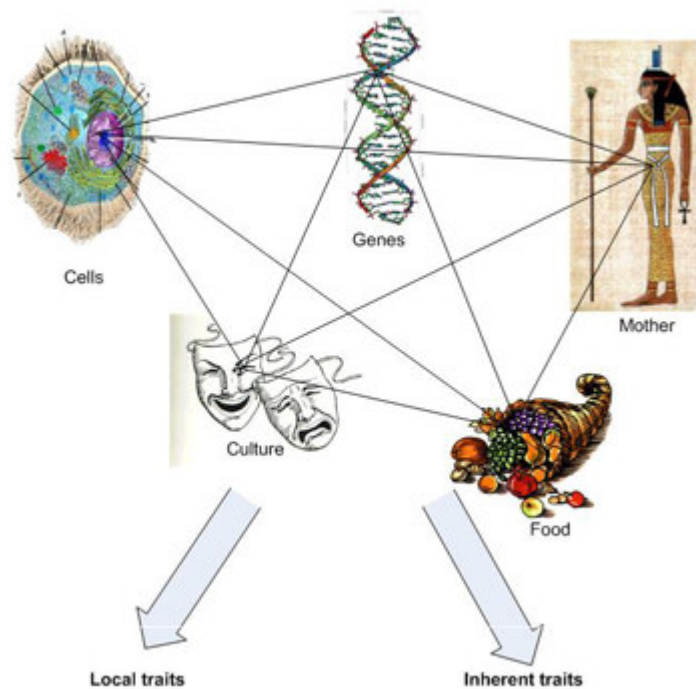


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## Genes and Language



**Genes work as part of a eco-system**, not as lines of code in a computer program. Some of its outputs are predictable, some are not.

Here's a bit of unexpected news. An authoritative book almost 500 pages long and listing over 150 genes related to language has recently been published in Spanish. It is not (yet?) available to English language readers. It's a good reminder that not all the important work on language origins is being conducted in English. [Antonio Benitez-Burraco](#) has published [Genes y Lenguaje Aspectos Ontogenéticos, Filogenéticos y Cognitivos](#) [Genes and Language: Ontogenetic, Phylogenetic, and Cognitive Issues] in Barcelona. I wouldn't know about it at all if it were not for a review by [Victor M. Longa](#) in the latest issue of the online journal, *Biolinguistics*. Should I master Spanish so that I can read it? Probably, but for the moment I'm going to have to settle for the 8 page review ([here](#)).

The book is reported to list three types of genes:

- those exclusively involved in linguistic impairments,

- those involved in general cognitive impairments that also affect language,
- those involved in cognitive impairments that do not affect language, but seem relevant anyway.

The review does not tell us how many genes fall into each category. We are given the impressive 150+ number, but for all I know the distribution among these categories is 1:3:146. Without a distribution count it is hard to interpret information like: the book “seeks to unravel the [developmental, evolutionary] and cognitive implications of the genes involved ... in human language” [p. 415]. At first I was frustrated by this barrier, but then it occurred to me that even if almost all the genes in the book fall into the third category, it would be a great help to know about the relationship between genes and cognition in general.

So what is that relationship? Should we be looking for the “genes of thought?” No. The view of genetics promoted in the review, and presumably in the book too, is that genes interact with many other factors—e.g., cells, neurons, behavior, environment—and picking any one of them as the starting point of one’s analysis is arbitrary. [Susan Oyama](#) is quoted approvingly, “a gene initiates a sequence of events only if one chooses to begin analysis at that point” [416].

The villain in this account is the “genetic program’ metaphor,” which I take to refer to the idea that cells are computers being run by the program in a gene. Whether any evolutionist has ever taken that idea seriously, I don’t know, but if so, it wasn’t recently. By now it is quite clear that the gene is an important player in a web of interactions. Like baseball pitchers, genes have a role in almost every event but they are hardly the whole story. Nevertheless, it is probably important to stress that point in a book about genes, lest readers think that in the end it all comes down to one’s DNA.

For students of language origins, this observation about genes forces a question. If even genes are not always decisive in shaping an individual, what about language might possibly be innate?

Apparently the whole of the book’s second chapter is devoted to the issues of innateness in developing language. It argues that “the faculty of language [is] the outcome of epigenetic processes rather than the product of purely genetic processes” [414]. In other words, our ability to use language is not primarily the result of our genes and yet it is still built into us.

Is that idea self-contradictory? The reviewer explains, “The faculty of language [loses] its genetic character, but not its ... innate nature[. It can be called innate] because of its propensity to arise, irrespective of the foundations of its development” [414].

This line of thought seems very abstract, but just means that language is going to appear, no matter what the reason for it. If you don't like the word *innate*, try *inherent*.

This revised understanding of innateness turns what had been a debate over axioms into an empirical one. Fifty years ago those, like [B.F. Skinner](#), who assumed that humans were blank slates argued: we are blank slates and therefore we can predict nothing about one language by knowing another language. To which the opposite school replied, no language is innate and therefore we can predict everything about any language on the basis of knowing one language.

Neither one of those propositions held up very well during the half century that followed, leaving people on both sides frustrated, confused, and defensive. But the revised definition of innateness lets us begin by looking for facts about what is common and what rare among languages. One now obvious point. Some things are true about all languages (e.g., all sentences have aspect (a point of view) while no animal communication does), but some things are not (e.g., only some languages used fixed word order, and those that do don't all are on the correct order).

There is room for empirical work by everybody.

Those interested in learning (typically, those who lean toward the blank slate) can get to work trying to understand, say, how the different routes to pluralization are mastered.

Meanwhile, those interested in inherent features can take the route outlined in Benitez-Burraco's new book and look for the interactions between genes and the rest of the players to produce a (near) universal trait.

Finally, there is also room for a third group, one that was excluded from the innate/blank-slate divide. What is it about a feature that puts it into one category or the other?

Apparently Benitez-Burraco's book is well on the way toward establishing what the research in this modern, empirical way can look like. It takes genes very seriously, studying them in their molecular detail and listing them by the score, and yet it "advocates the need to reduce the role of the genetic endowment, and argues for the non-specific nature of the principles [of] the language faculty" [417].

Too bad my Spanish has pretty well run its course when I order a bottle of *Dos Equis*. I particularly welcome comments from any Spanish speakers who have managed to get a peek at this promising new book.

### Links:

Antonio Benitez-Burraco: <http://www.mod-langs.ox.ac.uk/gstaff/staffpage.php?personid=287&subfac=spsub&pubs=sel&r=&sort=jobstatus>

Genes y Lenguaje:

<http://www.amazon.com/gp/product/8429110046?ie=UTF8&tag=tellingitcom-20&linkCode=xm2&camp=1789&creativeASIN=8429110046>

Victor M. Longa: <http://www.isrl.illinois.edu/~amag/langev/author/vmlonga.html>

Book review: <http://www.biolinguistics.eu/index.php/biolinguistics/article/view/104/134>

Susan Oyama: [http://www.asij.ac.jp/japan/asij\\_authors/m\\_o/oyama.htm](http://www.asij.ac.jp/japan/asij_authors/m_o/oyama.htm)

B.F. Skinner: <http://www.bfskinner.org/BFSkinner/Home.html>