

The universal structure of babbling

How Language Comes to Children

by Bénédicte de Boysson-Bardies

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The ideas of famous authors, no matter how subtle, rich and complex, often circulate condensed in very short sentences. From Noam Chomsky, who tops, among the living, the sheer number of quotations in other authors' works, we have two such sentences here. They have been received, in the course of almost five decades, with admiring consent by some linguists, with disgust by others, and with perplexity by many non-linguists. The first is: "Learning our mother language is not something that we do; it's something that happens to us." The second says: "The scientific value of the expression 'learning one's mother language' is the same as that of the expression: 'The sun rises in the morning'. That is: zero!"

The title of a book by Bénédicte de Boysson-Bardies on language acquisition, *How Language Comes to Children*, has indeed an unmistakable Chomskyan flavour. Generative grammar is the name for the line of enquiry opened by Chomsky since the mid-1950s, and it is this line that looms large in the entire book, just as it has in the original experimental research for which the author is known. The core idea of this approach, or at any rate the thesis that has been most frequently singled out for praise or for blame, is (to put it very bluntly) that language is innate. The author's declared aim is to make the ideas, methods and results of a universalist, innatist approach to language acquisition accessible to a wider public.

Steven Pinker's masterful *The Language Instinct* (Harper, 1994), now available in several foreign translations, has quickly become a scientific best seller. I can bear witness to its success in conquering the assent of many uninitiated readers, including some who were initially hostile to Chomsky's ideas. In the domain of popularization and persuasion, therefore, Pinker has surpassed the master.

At the price of being more than a bit unfair, one cannot help comparing de Boysson-Bardies' book to Pinker's. Both stem from the same scientific roots, are similar in scope and ambition, and, sure enough, quotations from Pinker are abundant. While Pinker has painted in vivid colours a vast landscape, de Boysson-Bardies is poised to draw accurate sepia sketches of fascinating corners of that landscape. The baby's own perspective is constantly emphasized. Digging out a wealth of little-known historical antecedents, inserting pearls of quotations from a variety of unexpected sources, and



Learning by rote: but the skill of language acquisition is innate.

exploring the habits of child-rearing in distant cultures, this book manages to exhibit all the essential facts relevant to language acquisition, from the last months of gestation to birth, then to the first weeks, months and years of life. The neurological correlates of the various language stages have also been closely tracked.

De Boysson-Bardies has taken great care to untangle the universal components, common to babies the world over, from a variety of interesting specificities, proper to the different languages. For instance, the patterns of spontaneous vocalizations, characteristic of the babbling of babies reared in a strictly mono-lingual environment in France, are compared with those of American, Algerian, Cantonese and Japanese babies, who are likewise linguistically confined. Interesting analogies are, thus, revealed between the profiles of babbling and the phonological and prosodic patterns of the corresponding adult language. Contrary to a still dominant tradition, babbling is here vindicated as preparatory to, and continuous with, the profiles of the first words produced by the child many months later.

In an appendix, the author reconstructs a timetable of language development. An intelligent use of charts, lists, histograms and sketches of experimental designs helps the reader to become familiar with the core of the investigative techniques through which "the Sherlock Holmeses" of early language acquisition can ask precise questions of their little subjects, and be rewarded sometimes with loud and clear answers.

Alas, here and there, mostly when she covers her own work and that of her collaborators, de Boysson-Bardies gets carried away,

indulging in details that are inordinately minute for a book of this size and ambition. Teachers and students of psycholinguistics, developmental psychology and infant cognition may well treasure all such details, but not every reader can be expected to enjoy them. True enough, behind our close encounters with endearing Léo, Emilie, Sean, Marc, Timmy, Marie and their mothers, there is always some big, universal question. For instance: are the systematically distorted words that the child produces stored in memory as being the same as the adult's words that the child perceives and recognizes? How general are the child's linguistic learning strategies? Is it really the case that, to a cold scientific eye, learning English is exactly the same as learning Cantonese?

Chomsky likes to suggest that, to an intelligent Martian, all human languages and dialects look structurally the same, in spite of certifiable superficial differences. This remark makes linguists of a different persuasion draw their revolvers. De Boysson-Bardies is determined to have a closer look at real data from cross-linguistic developmental studies, charting more precise frontiers of sameness and difference between languages than the Martian would. She is adamant in arguing that, in this domain, clear-cut and simple answers are mostly untrue. We are, therefore, duly exposed to subtle differences between languages, and between individual strategies of language acquisition within the same language.

Inside the genetically determined envelope of what is linguistically possible, the child has leeway to choose his or her personal avenue to the mother tongue. In the author's own words: "Children's styles or modes of

accessing language show themselves to be incredibly different. How can this be explained on the basis of common mechanisms?" Two-hundred-odd pages of clear prose built on an enviable expertise make it very clear that this is not a rhetorical question. Boysson-Bardies' snapshots of language acquisition are all taken from Mount Universal. The core message is simple: only when looking down from that peak can we really follow the fine interweaving of the innate and the acquired components of the child's linguistic capabilities. □

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Thou shalt not mix religion and science

Rocks of Ages: Science and Religion in the Fullness of Life

by Stephen Jay Gould
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"I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance," Charles Darwin is quoted as having said in Gould's impassioned thesis on the age-old question of science and religion. It is in this remark that the kernel of Gould's thesis lies. There is no essential conflict between science and religion — in the fullness of life they are both vital, but they belong to two utterly different realms which do not overlap and cannot be synthesized.

Quite remarkably, this thesis is expressed and elaborated on in this petite volume in a highly personalized, colloquial parlance. It moves far and wide in the process — into the history of science, politics, biological evolution, and even classical poetry. He moves back and forth between the nature and scope of science, to the essence of religion. This is an ambitious synthesis, but it neither intimidates nor does it seem too far-fetched. Gould appeals to common sense, and deliberately sticks to that level.

Gould tells us that the "details" referred to by Darwin in the above quote are precisely and exhaustively the business of science. Details here mean empirical facts, in contrast to larger questions concerning the ultimate drift and meaning of the cosmos. And going beyond Darwin's remark, Gould adds that these facts exist for *immediate*, not transcendental reasons: reasons that are knowable through rational means and subject to scientific explanation. There was no "intended meaning in the fall of each petal and every raindrop" — this is what Darwin meant by "chance"; it meant "contingency" as



The battle between creationists and scientists in the US courts is not part of a wider war between science and religion, argues Gould. Above: anti-evolution books on sale during the Scopes trial of 1925.

opposed to some pre-ordained design. Science is a factual construction of the world, involving the development of theories that coordinate and explain nature's empirical data. Nature exists in "sublime indifference" to *Homo sapiens*, with "no preference for accommodating our yearnings", no matter how much we long, like the Persian poet Omar Khayyam, whom Gould quotes, to mould it to our shape.

But factual questions about the world, Gould explains, define both the scope as well as the limitation of science — its magisterium. Science has no business making moral pronouncements; factual truth cannot dictate moral truth. Questions of meaning and morals, of life's ultimate purpose and values, of human fellowship and ethical conduct — these belong properly to the institution called 'religion', embodying a different magisterium.

Just as science has its limitations, so has religion. If life's evolutionary history cannot resolve the riddle of life's meaning, so the religious belief concerning the creation of the world in six days, taken literally, cannot dictate or interfere with factual conclusions in the empirical realm of cosmology. Science and religion, then, embody two logically distinct magisteria, each having its own style of enquiry, its own set of standards and norms, and its own test of legitimacy. Neither of them encompasses all enquiry. Into this framework comes Gould's core declaration: science and religion embody two equally important but utterly different Non-Overlapping Magisteria, or NOMA.

Gould's NOMA, which is often reminiscent of Thomas Kuhn's paradigm, is at once a prescriptive principle and a historical representation. On the one hand, Gould says that scientists and believers ought not to violate the principle of NOMA. This would allow

the two magisteria to coexist and flourish in a position of respectful non-interference, with one seeking inspiration and illumination from the other without the two fusing. To paraphrase: as scientists, we look into the palpable reality of the natural world; as believers, we look into our inner beings. In this way we fashion a quilt of understanding with distinct, non-overlapping patches — and we call this patchwork wisdom.

On the other hand, articulating some of the latest historical research, Gould claims that the principle of NOMA has been effectively respected throughout the history of science. In truth, there was no conflict between science and religion; the conflict existed only in people's minds, not in historical reality. Thus, on the authority of a contemporary historian, Gould points out that the famous trial and forced recantation of Galileo in 1633 was a political drama of a princely court, not a science-versus-religion fight. Similarly, on compelling historical grounds, Gould challenges what he considers a legend: that medieval church fathers in general taught the doctrine of a flat Earth, and that Columbus suffered in the hands of ecclesiastical authorities over this "non-issue".

Finally, recalling in detail the fierce and scandalous creationism versus evolution battle in the American courts, a battle in which Gould himself fought, and which has been recently revived, he tells us once again that this was a political phenomenon of a uniquely American kind, not science against religion.

It is hard to imagine reasonable minds having any quarrels with Gould's motives: deeply concerned about science, he wants to protect it from the attacks of naive and misguided religious zealots who understand neither science nor religion. At the same time, he wishes to instill confidence in scientific circles that human history is on their