Wired for Sound
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The Language Instinct: How the Mind Creates Language by Steven Pinker. Allen Lane. 493 pp., £20, 11 April, 0 713 99099 6

Patterns in the Mind: Language and Human Nature by Ray Jackendoff. Harvester, 256 pp., £11.95, 1 October, 0 340 9563 7

...writes in a fact that we literate investigators tend to underestimate. Today we are building the information superhighway, and for several years now cerebral blood flow has been a primary medium of cultural transmission, but for at least a thousand millennia before that, the main medium of information transfer from generation to generation was the well-beaten path of word of mouth. Language was already a highly refined biological product, complete with all its modern appurtenances, long before writing was invented.

Unlike the illiterates of today, we don’t just hear language; we see it, nearly broken into words separated by spaces, strung out in speaking order across visual space. This view is as much a triumph of software as the view of the world through a telescope. In the Fifities, Albert Lord recorded the illiterate bards of Yugoslavia, relit masters of the oral tradition’s ancient mnemonic arts. When he was that we would lose specific ‘words’ and ‘lines’ of their epic poems, they were baffled. These bards had a sense of ‘sound groups’, but their productions were not really analysable by slow into words, lines, sentences. Of course, their sound streams were analysable into the standard grammatical categories, but this analysis is a sophisticated product of ‘science’: it breaks language down into elements we can study in isolation, in perception, even though the adepts rely on recovering just such perceptual cues to guide their own practices.

The science of linguistics has slowly evolved over several millennia, if we count, as we should, the pioneering (and sometimes strangely stumbling) attempts to analyse such early masters of self-consciousness as Plato and Aristotle. What was a word? How could meaning reside in a sound? Why are some sequences of words better than others, and how many dimensions of comparison are there? Some utterances are false but beautiful, others are beautiful but boring, and still others are not even up to being true or false – they are nonsensical or incoherent, orgrammatical. How can this be? Grammar and logic and rhetoric and poetry all took their proper places as parts of the systematic analysis of language, but it was only in the 20th century that the various phenomena of language began to come together. In the early 1950s, linguistics was ready for its Newton, or its Einstein: Noam Chomsky. Building on the foundations provided by earlier linguists and linguistics, Chomsky showed how the protein complexly encoded by the tongue is analysed – along at least some of its dimensions – with mathematical precision.

The most striking discovery Chomsky made was that we have a built-in language we get through the prims of writing. Words are not just beads of sound strung together in a line, with tiny gaps of silence in between. The processes that generate the sen­tences we have heard pass through a stage at which parsers analyse the sentences we hear as a beautiful structure inscribed to the naked ear and invisible to the ill-clotted eye of the literate speaker. It is the structure of a tree, with a trunk and a branching network out to the farthest branches of the earth.

Chomsky’s slender 1957 book, Syntactic Structures, was an application to natural languages such as English of the results of an ambitious theory which had been undertaken into the logical space of all possible algorithms for generating and recognising the sentences of all possible languages. In this book, Chomsky introduced early versions of his new grammatical formalisms for language, and thus was born the modern science of linguistics. Soon the intellectual world was abuzz with rumours and myths about this arcane new science. This ‘science-chemistry’ has made and confirmed a surprising discoveries, and both successfully open the huge space of wider implications about the human mind that linguists have al­ways proclaimed to be the ultimate fruits of their research. Ray Jackendoff, of Chom­sky’s star pupils but always a brave and indi­pendent thinker who never got swept up in the various innovations and manias, and Steven Pinker, one of Chomsky’s star colleagues but also one who has staunchly resisted the local strains of contagious hysteria, have each writ­ten an accessible, entertaining, authoritative introduction to the modern science of language.

Both books present accurate surveys of the current cutting edge in linguistics, and explain how it was created. Comparing their respective styles to the various topics is grat­ifying, for they agree right down the line, not only on the facts, but on the bearing of the facts on the larger issues. For everybody who works in these fields, this is in itself an enormous con­tribution. But since I have already told both authors, I don’t think either book taught me any facts about linguistics I didn’t already know, but until I read the books I didn’t know I knew not all the systems of representation I had trusted my own judgment. Thanks to their books, a sturdy, reliable, detailed version of the fruits of linguistics will finally become available to those who cannot devote a career to figuring out which authorities to believe about the prospects and fates of which theories.

Both authors describe the theoretical im­portance of research on the natural languages. For example, American Sign Language and they also draw much the same conclusions from important studies of language pathology due to brain damage, and language acquisition under abnormal circumstances. In the course of these experiments, they confirm in great detail what should have been obvious, but was often contested in the heat of battle: a good science of language will help research in ling­uistics, psychology, and neuroscience.

What are the differences, then, between the books? Pinker is almost twice as long, and includes fascinating excursions into somewhat more far-flung curiosities and controversies. I particularly recommend his witty – but not mean-spirited – debunking of the ‘language­maven’s’, those self-appointed authorities on the proprieties of language who have worked for centuries to get us all to give ourselves airs in the name of science. Pinker fleshes out under these well-meant scolds is not the independent intrusion into social criticism one might think. Pinker grounds his criticism on empirical facts about what is normal as a biological phenomenon that have emerged in recent research. He introduces the topic with a deliciously apt comparison: ‘Imagine that you are watching a nature documentary. The dogs do not execute their swimming strokes properly. They no longer respond to their calls. Who is this announcer, anyway?’ Yes, a grammar is a normative system, which quite sharply distinguishes between proper natural phenomenon, designed over the aeons by evolution. The comically short-sighted at­tempts by some of those who believe in a Mother Nature a little assistance in the quality control department betray a fundamental mis­apprehension about language that Pinker seeks – successfully – to dispel. Both authors agree on a large measure on the implications of linguistics for models of how the human mind works. Pinker emphasises the multiplicity of similar independent cognitive gadgets that compose the mind, while Jacken­doff emphasises the wrenched unity of some of the design features of these gadgets; but this hardly counts as a disagreement, except per­haps for the somewhat different strategic mor­ality one might care to assign a task or inves­tigate or model. What they agree on is much more important: the hard evidence that the brain systematically transforms mental representations of stories as coded in the brain. (Most of these are representations that you and I are not directly privy to via introspection, by the way.) Some of the more cautious investigators in neuroscience have been particularly sceptical of ‘cognitive’ mod­els, which aimlessly populate various systems of, internal representation that get transformed and processed in various ways. It is certainly true that cognitivists have often gone too far in enthusing about the vast and fantastical models of information-processing purportedly going on somewhere or other (who cares where) in the brain, but underlying these excesses is a basic problem it establishes beyond any reasonable doubt that the brain does engage in a host of processes that can be described and predicted by such representational models – and only by them. Jackendoff is more constrained than Pinker to meet the sceptics about representation head­on, so those readers with conceptual or philo­sophical scruples about the very idea of internal systems of representation may prefer their satisfaction more directly from Jackendoff.

‘Linguistic phenomena are not the only mental phenomena that fall dramatically into place when you look at the world through an ab­stract lens, but they are among the clearest, and they thus provide an excellent base for fur­ther operations. Each system of representation has a formal or structure that puts quite speci­fic constraints on the results of the system within it – its grammar, in an extended sense. Jackendoff’s book is built around a single theme with variation, developed first for lan­guage and then for music (or he is himself a pro­fessional musician) and perhaps to evil theo­retical work on music. He then turns the same analysis to vision, and – the top quart of psychology – thought. In each domain we dis­cuss the same themes either already confirmed or well on their way to confirmation.

Arguing for Mental Grammar establishes that for the domain in question ‘our ability to make sense of novel stimuli is supported by a set of abstract patterns that are existing within that domain.’ Second, the Argument for Innate Knowledge establishes that ‘we learn the patterns we do in part because our brains are genetically programmed with substantial ab­stractions that we do not get from experience.’ Third, the Argument for the Construction of Experience establishes that our experience and under­standing of stimuli in each domain ‘is actively constructed from the innate basic patterns that are exploited by the unconscious mental operations of the human mind, as is also the case for the unconscious mental operations of the animal mind.’
unwilling to consider evolutionary theorising about why the structures his linguistics was uncovering should be designed the way they were, and it has been de rigueur among linguists to ignore— to the point of hostile rejection—all evolutionary thinking in their discipline. Linguistics should be more like physics than like biology, they have said, with the master, and language is unlike anything else in the universe, as if it were a gift from God.

Those days are over, too. It is a joy to witness, at last, the promise of linguistics fulfilled, not quite the way its own heroes anticipated, but—as one would expect—even better than they had imagined, thanks to its joining forces with its neighbours. Now we can get on with it, noting with a historian’s tolerant eye the biases that prevented the pioneers from seeing all and only the strengths in their own work. And now we can present to a still anxious world of outsiders a front that is more calmly united, not by a particular scientific ideology but by a cornucopia of results.