OUR SILENT PARTNERS

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We are animals in our appetites, and animals again in our instincts and emotions. We are animals in biology. Blood is blood, tissue is tissue, and cells are cells; and when everything is stripped away, we are animals in the organization of our genes, mindful now that but for a few alterations of the human genome, we might well be slithering about in some abysmal pond or lowing in the field, or even contemplating the mysteries of life as a form of yeast. What the medievals called the great chain of being is a vibrant faith in contemporary biology, and so in evolutionary psychology as well. Everything is connected.

Human language represents an odd, irritating impediment on the otherwise smooth manifold of these reflections, for the plain fact of the matter is that while other animals hoot, chatter, grimace, moan, whistle, chirp, bang their heads upon the ground, twitter, dance, bark, meow, sing lustrously from the trees, screech in barns, or make disgusting slurping noises to attract their mates, it is only human beings who talk, and so only human beings who catch sound and meaning from the air.

During the first half of the twentieth century, American psychologists such as John Watson and B.F. Skinner assumed that language was essentially an acquired habit, one imparted in training and acquired by diligence. This view was decisively refuted by Noam Chomsky in the late 1950s. The proper object of linguistic study is not what human beings do in speaking a language, but what they must know in order to do what they do. What they do know, Chomsky demonstrated, is quite astonishing and goes beyond what they might have learned. Grammatical judgments involve both delicacy and precision. A grammar is required, a device for generating the sentences of a natural language from its words, and since there are infinitely many sentences in any human language, a grammar is inherently recursive.

These ideas constitute Chomsky's revolution in the cognitive sciences; and over forty years they have constituted as well the strongest reason for taking seriously the view that the mind is engaged in computations. They do something more. They reveal the very deep tensions in evolutionary psychology between its theoretical commitments, for the very arguments that led Chomsky to reject stimulus response theories in linguistics may with little difficulty be used to reject Darwinian theories in biology. In stimulus sampling theories, for example, subjects are presented with random stimuli; their responses follow, followed in turn by selective reinforcement. But Darwinian theories make precisely the same

assumption, with the psychologist's random stimuli the random variations in the genome, and reinforcement, natural selection itself. Evolution is learning undertaken by a species. The rhetoric in both disciplines has an eerie familiarity. Behavioral psychologists were quite sure that reinforcement was the only force that could account for learning, just as Darwinian biologists are quite certain that natural selection is the only force that could account for complex structures in biology.

But if behavioral theories are inadequate to explain the acquisition of language in a child, why should precisely the same theories be adequate to explain the acquisition of language in a species? Nothing beyond time is variable between the two cases, and time is of little relevance, since as Chomsky argued there are things that *no amount* of training can teach. Chomsky became known not for his disavowal of Darwinian theories, but for his discontent. "Any progress [toward the goals of linguistic theory] will deepen a problem for the biological sciences that is far from trivial: how can a system such as human language arise in the mind/brain, or for that matter, in the organic world, in which one seems not to find anything like the basic properties of human language?"

And yet there it is that odd thing, for in a recent paper in Science, written jointly with Marc Hauser and Tecumseh Fitch, Chomsky has reinvented himself as an evolutionary psychologist, one prepared manfully to embrace the great apes and by placing a moist hand on their hairy shoulders welcome them as our silent partners in the great work of language. It is a remarkable effort, the more so since what the paper claims and what it concludes are utterly at odds.

Entitling their paper 'The Faculty of Language: What it is, Who has it, and How did it Involve,' Hauser, Fitch and Chomsky begin reasonably enough by dividing the faculty of language into three parts, each corresponding to what an organism must have in order to be able to use a language. A *sensory motor system*, to begin with. In order to say anything, an animal must be able to say something, and so requires organs of speech, articulation, hearing and comprehension. A *conceptual-intentional system* next. In order to say something, an animal must have something to say and so requires thoughts and intentions. And finally a *recursive system*. In order to spin off sentences, an animal must be able to spin them off without end, and so requires a computational system. Of these components, Hauser, Fitch and Chomsky suggest in outlining their ideas, the first two are found in other organisms, and so present evolutionary psychology with no special problems. It is only recursion that is uniquely human. But no specifically Darwinian theory is required to explain its emergence. Like a smile, it just appears.

It is by these elegant parallel motions of displacement and insouciance that Chomsky proposes to establish his credentials as an evolutionary psychologist while emptying evolutionary psychology of any conceivable intellectual interest. Whenever evidence concerning our silent partners is examined seriously, it appears that striking limitations on what they can say or think are in force.

Do our silent partners have the right kind of sensory motor system to make language possible? "The available data," Hauser, Fitch and Chomsky suggest gamely, "suggest a much stronger continuity between animals and humans with respect to speech than previously believed." At once they suggest precisely why the available data is entirely misleading. The human capacity for vocal imitation is not found in any other species to any notable extent. The average

high-school student, they observe, knows as many as 60,000 words and these acquired with little or no effort. "Herculean efforts," they admit, are required to persuade even clever chimpanzees to acquire a handful of words. "Our discussion," Hauser, Fitch and Chomsky conclude, "… is not meant to diminish the impressive achievements of monkeys and apes, but to highlight how different the mechanisms underlying the production of human and non-human primate gestures, either vocally expressed or signed, must be."

There is next the matter of what our silent partners might be thinking during the long night in which they found themselves unable to say what they had in mind – what Hauser, Fitch and Chomsky call "the mismatch between the conceptual capacities of animals and the communicative content of their vocal and visual signals." As it happens, animals do have a rich inner thought world, a conclusion that will come as no surprise to anyone who has owned an animal. But when it comes to the crucial concepts necessary for language, the point at issue, after all, animals are lacking. They do not use and cannot grasp the point of a complex, independent referential system whose elements are arbitrarily associated with things. The matter is quite beyond the reach of otherwise intelligent apes. "It appears that many of the elementary properties of words … have only weak analogs or homologs in natural animal communication systems," Hauser, Fitch and Chomsky acknowledge.

If animals can neither acquire words by imitation or use them without effort, what, one is bound to ask, remains of the thesis that there is "a much stronger continuity between animals and humans with respect to speech than previously believed"?

Undeterred by their own argument (or their own sources, for that matter), Hauser, Fitch and Chomsky conclude that "the data summarized so far, although far from complete, provide overall support for the position of continuity between humans and other animals."

There remains recursion, the jewel in the crown. And about the emergence of this key feature, Hauser, Fitch and Chomsky have nothing of interest to say, beyond speculating that it, too, might have been an earlier acquisition of our silent partners, one used, say, for navigation or foraging, and by some supremely lucky accident, breaking free, or popping out precisely when most needed.

To imagine that language arose among primates incapable of speech, and unable appropriately to think, by means of a recursive system designed for other ends, represents a conspicuous willingness to look anywhere for miracles save in the place they are generally found.

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