Thought: humanity's evolved essence

SIR — Patricia Churchland's review of Steven Pinker's latest book *The Stuff of Thought* ('Poetry in motion' *Nature* **450,** 29–30; 2007) offers scant information about the book, and what there is is incorrect. Churchland instead presents her own views on how molecular biology and neurobiology provide challenges to Pinker, but in so doing she undermines the successes of these disciplines. She concludes that Pinker's book is only about semantics and that his discussion of the mind represents a kind of madman nativist perspective, ignoring the role of the environment and research in the neurosciences.

I have the impression that Churchland restricted her reading to the prologue, heaving the book across the room in dismay while ejaculating "Same old, same old!". Otherwise, she would surely have come across Pinker's detailed analysis of the evolution and development of the core conceptual structures of space, time, number and cause, and how these building blocks enable the child to acquire not only a lexicon, but also an understanding of the world. This view doesn't eliminate either experience or cultural processes, but rather shows ways in which a core architecture may constrain the acquisition of knowledge and lead to a suite of shared mental capacities.

She would also have come across rich and entertaining chapters on naming our children, swearing (I refrain), and the pragmatics of bargains, bribes and other social conventions. And throughout, Pinker mentions work in the neurosciences. This includes studies of brain-damaged patients, cellular recordings of animals and humans, and imaging experiments; some of these Pinker conducted himself with colleagues and students.

But these ideas are sometimes controversial, and it saddened me that the review did not discuss why. Instead it went into challenges apparently posed by genetics and neurobiology for the cognitive sciences, and particularly for the brain-as-merely-hardware kind that Pinker is said to peddle.

Take, for example, Churchland's assertion that "extravagant claims about human uniqueness must deal with the discovery that humans have only about 28,000 genes, and differ from mice in just 300 or so". (Not so: humans have only about 300 genes not found in mice, but the others aren't identical.) Even if accurate, this would not constitute an argument against any of Pinker's book. In fact, it shows why one has to be careful in interpreting the relationship between genomic sequence overlap and phenotypic similarity. The monumental cognitive gap between mice and humans tells us that the number of homologous genes and the percentage of sequence overlap are simplistic measures of species similarity, rather than the genomic overlap telling us that humans are cognitively equivalent to mice.

We have to look to another story to explain how, given such overlap, we are so different. The point is magnified when we consider the 98% overlap with chimpanzees, and again, the spectacular differences in our cognitive abilities, ranging from the expression of language, music and mathematics, to the creation of soufflés, GPS navigators and humour. I hope the readers of *Nature* will dig into Pinker's book, even if it is only to learn what he said.

Marc D. Hauser
Department of Psychology, Harvard University, 33 Kirkland Street, Cambridge, Massachusetts 021138, USA

Marc Hauser [mailto:mdh@wjh.harvard.edu]
MARC D. HAUSER

Harvard College Professor

Professor of Psychology, Organismic & Evolutionary Biology, BioAnthropology

Co-Director, Mind, Brain & Behavior Prg.

Director, Cognitive Evolution Lab

33 Kirkland Street, Dept. Psychology

Harvard University, Cambridge, MA, 021138