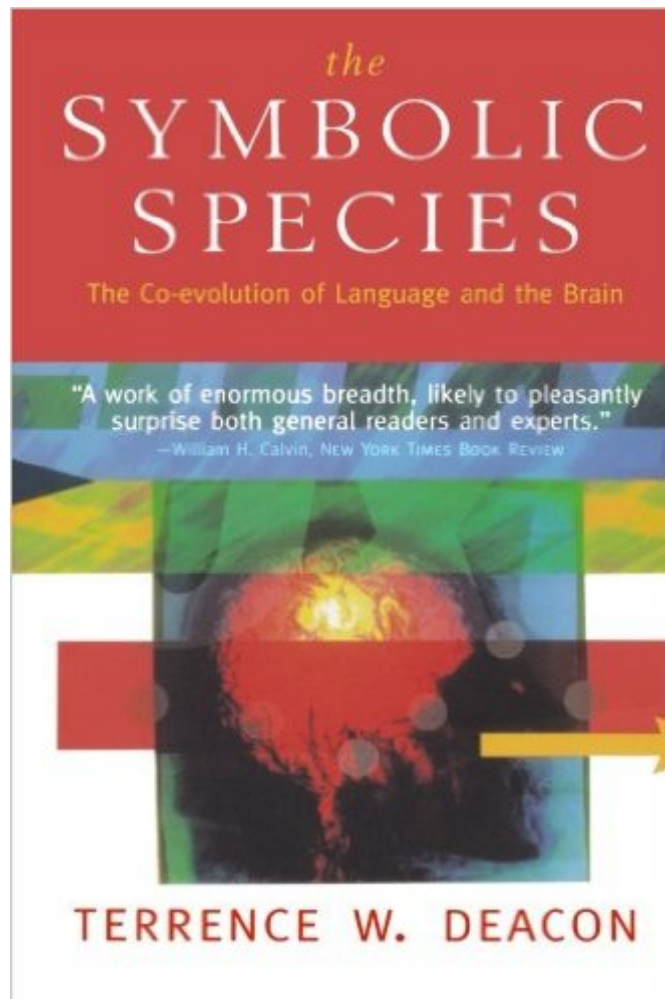


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# The Symbolic Species: The Co-evolution Of Language And The Brain



## Synopsis

"A work of enormous breadth, likely to pleasantly surprise both general readers and experts." •New York Times Book Review This revolutionary book provides fresh answers to long-standing questions of human origins and consciousness. Drawing on his breakthrough research in comparative neuroscience, Terrence Deacon offers a wealth of insights into the significance of symbolic thinking: from the co-evolutionary exchange between language and brains over two million years of hominid evolution to the ethical repercussions that followed man's newfound access to other people's thoughts and emotions. Informing these insights is a new understanding of how Darwinian processes underlie the brain's development and function as well as its evolution. In contrast to much contemporary neuroscience that treats the brain as no more or less than a computer, Deacon provides a new clarity of vision into the mechanism of mind. It injects a renewed sense of adventure into the experience of being human.

## Book Information

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## Customer Reviews

Three reasons to read "The Symbolic Species". 1) Deacon describes how neuroscience is finally producing results that deal with the issue of how brains make human language possible. 2) Deacon presents a theory of brain/language co-evolution that stresses the importance of behavioral innovations that alter the human environment leading to subsequent genetic adaptation. 3) Deacon explores ways by which Philosophy of Language can be refined by incorporation of results from the scientific study of human language. This three-fold enterprise depends on the neuroscience results discussed in Part Two of "The Symbolic Species". For example, Figure 7.8 draws our attention to

the idea that prefrontal cortex is disproportionately large in the human brain. Deacon suggests that changes in the relative sizes of brain regions during human evolution is a mechanism for adaptations that allow humans to better perform language tasks. Figure 8.3 pictorially illustrates an evolutionary trend in anatomical connections towards more direct cerebral cortex control over the motor neurons that are involved in vocalizations. These examples illustrate the fact that Deacon's theory of brain/language co-evolution is heavily dependent on comparative studies of brain anatomy. Deacon tries to convince us that the major anatomical changes during human brain evolution are the precise types of changes in an ape brain that would facilitate human language behavior. According to Deacon's theory, early humans started using language as a social innovation and then the human brain changed so as to make it easier to use human language.

This is ambitious stuff. Deacon wants to explain the origins of language, underlying neural dynamics, explain symbolic reference and to show why Chomsky is wrong on his ideas on language. The result is a highly readable and complex text that somehow Deacon manages to maintain coherent. Many interesting ideas and insights can be found in the pages of this book. However it is not at all clear to me to what extent all of this is groundbreaking stuff. For example, darwinian processes in neural dynamics and development are not new ideas, as Deacon admits. Edelman, Calvin, Changeaux all got there first. The role Deacon gives to the prefrontal cortex is not new either. His explanation of symbolic reference as a collection of indexical and iconical relationships, and further symbo-symbolical higher order relationships, is philosophically questionable to say the least. Why would symbolic abilities arise out of adding levels of non-symbolic relationships, in the way Deacon proposes?. Surely, symbolic abilities must depend on non symbolic mechanisms at some level, but it is not clear at which. But Deacon also has moments of genius. His attack on Chomskian innate universal grammar frameworks is brilliant. Language evolved to adapt to the cognitive abilities of humans and therefore it seems it is learned too easily. It is not that children have a grammar module, but that their general modules are enough when most of the adaptive work was done by language itself by evolving. Deacon also shows why grammars are not things that can become innate in the first place too. They cannot be invariant enough for selection to work on the brain to acquire them. Deacon also shows what did happen in the brain for there to be language.

I edited THE SYMBOLIC SPECIES when I was employed at W. W. Norton, and no book I worked on in my fourteen years at Norton ever received so many enthusiastic comments and reviews from

leading scholars in related fields. Prospective readers may like to know that cutting edge thinkers and researchers such as Merlin Donald, author of ORIGINS OF THE MODERN MIND, consider Terry Deacon's revolutionary exploration of human origins and consciousness to be "the best book yet written on the evolution of language" and "theoretical dynamite planted deep under the walls of the neo-Chomskian fortress." Edward Manier, professor of philosophy at University of Notre Dame, says the book "should transform the foundations of the human sciences" and calls Deacon the "best neurophilosopher on the planet." Here are these and other leading scholars' advance reviews of THE SYMBOLIC SPECIES, along with excerpts from Booklist and the starred review in Library Journal. "An extremely sophisticated analysis of the relationship between language and the brain. Deacon provides a compelling picture of how language evolved to fit the ape brain. He also explains why and how different languages may utilize different parts of the brain to carry out the same linguistic function." -- Patricia Greenfield, professor of psychology, UCLA "A masterpiece. This superb and innovative look at the evolution of language could only have been written by the one person with the range, depth, and sheer competence to incorporate linguistics, ethology, developmental biology, paleontology, and evolutionary biology: Terry Deacon. An extraordinary achievement!" -- David Pilbeam, professor of anthropology, Harvard University "This is an accessible yet erudite volume, witty and uncompromising.

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