

# Knowledge and the Computer

(in French «Le savoir et l'ordinateur»)

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## **Knowledge and the Computer from information processing to knowledge processing and to knowledge sharing between Man and the computer**

This book studies the cultural impact of the knowledge processing technologies, in particular artificial intelligence. It analyzes in detail how a true sharing of knowledge is setting itself up between man and the computer, and it shows that, through this process, the very principles guiding the constitution of our knowledge are at stake.

### **Abstract**

As the computerized knowledge technologies are re-taking off it seems that the stuff our computers grind - "information" - is undergoing a deep mutation in its nature. It appears to be conquering a new and much more specific status, that of knowledge simultaneously conferring on computers an appearance of intelligence and a relative autonomy in their behaviour. In the process, we do observe that a large scale interaction mechanism is setting itself up between man and the computer, concerning both the access to knowledge (for instance its search in the Internet jungle) and its working out (as the activity of modelling is becoming more and more dependent on computerized pre-processing).

Although we have not yet a clear idea of the cultural and societal consequences such a mutation can have, we feel that this new relation to the computers could entail a revolution both in the principles that will guide the constitution and the formulation of our knowledge in the future. Knowledge would be worked over and formulated in such a way as to be both understandable by any ordinary human being (who knew nothing about the technical subtleties of a computer that is able to use it) and usable by a computer (that knew nothing about the psychic intricacies of a human who is able to understand it). From its inception, knowledge would therefore be shared between man and the computer - which means precisely that both of them would be able to reason and communicate about it. Now, this symbolic "cloning" of knowledge onto the computer has started very concretely with huge collections of such knowledge elements having been already constituted.

**A book aimed at any reader curious about knowledge and its technologies**

This book is aimed at any reader concerned by or interested in information or knowledge technologies,

or cognitive sciences, or semiotics, or applied epistemology—researchers, teachers, students or simply people who are curious.

The most original point in this book is that it invests a still unoccupied field at the junction between culture and information technosciences. Basically, the vision of these disciplines as producing models of culture challenges the classical approaches based upon models of mind. As it studies these technologies in their concrete reality, the book avoids the shortcomings of general epistemology—it nevertheless stands back far enough from them to uncover their deep cultural correlates.

Stating the structuralist filiations of the symbolic paradigm that is at the heart of these technologies, this book details its successive stages of development by artificial intelligence, its cross-breeding with the Internet problematics and technologies, and the very tangible existence of gigantic computerized knowledge bases whose development it inspired. Nearly ousted from the sciences of *cognition* by the neuronal approaches (these being implicitly in the quest of ultimate physical or biological foundations), this paradigm seems on the verge of a rebirth among the sciences of *culture*, close to structural semiotics. Implying a radical absence of absolute foundations, it allows a renewed outlook on some epistemological questions.

### **Denis Berthier, a long time practice in artificial intelligence**

A graduate from Ecole Polytechnique in Paris, France, the author started as a teacher and researcher in mathematical logic. Then, he created and managed an AI department at the Simulators Division of the Thomson CSF company. He is now an artificial intelligence Professor at the French Institut National des Télécommunications.

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