THE PRACTICE OF THE USE OF COMPUTERS
A paradoxical encounter between different traditions of knowledge

Bo Göranzon

ABSTRACT
A quotation from Shakespeare’s play King Lear, ‘I will teach you differences’, encapsulates the spirit of this paper. The distinction is introduced between three different categories of knowledge: i) propositional knowledge, ii) skill or practical knowledge and iii) knowledge of familiarity. In the present debate on 'Information Society', there is a clear tendency to overemphasise the theoretical knowledge at the expense of practical knowledge thereby completely ignoring the knowledge of familiarity. It is argued that different forms of theoretical knowledge are required for the design of current computer technology and the study of the practice of computer usage. The concept of dialogue and the concept of ‘To Follow a Rule’ are therefore fundamental to the understanding of the practice of computer usage.

KEYWORDS
dialogue, French Age of Enlightenment, to follow a rule, essentially contested concepts, propositional knowledge, practical knowledge, knowledge of familiarity, epistemological error

1 PARADOXICAL VIEWS OF KNOWLEDGE IN THE AGE OF ENLIGHTENMENT
In the modern sense, applied mathematics was the creation of René Descartes. In 1637, Descartes presented a study in which he showed how, by applying abstract algebraic concepts, it is possible to formulate geometry’s concrete points, lines, surfaces and volumes. He demonstrated a link between our three-dimensional world and a mathematical-logical way of thinking.

In his work ‘Discourse on Methods, Optics, Geometry and Meteorology’, in which Descartes presented his revolutionary mathematical theory, the word ‘machine’ is applied to the human body for the first time in history: ‘And this will not seem strange to those, who knowing how many different automata or moving machines can be made by the industry of man without employing in so doing more than a very few parts in comparison with the great multitude of bones, muscles, nerves, arteries, veins, or other parts that are found in the body of each animal. From this aspect the body is regarded as a machine which, having been made by the hands of God, is incomparably better arranged, and possesses in itself movements which are much more admirable, than any of those which can be invented by man.’

Descartes continues with an important argument: ‘Here I specially stopped to show that
if there had been such machines, possessing the organs and outward form of a monkey or some other animal without reason, we should not have had any means of ascertaining that they were not of the same nature as those animals. On the other hand, if there were machines which bore a resemblance to our body and imitated our actions as far as it was morally possible to do so, we should always have two very certain tests by which to recognise that, for all that, they were not real men. The first is, that they could never use speech or other signs as we do when placing our thoughts on record for the benefit of others. For we can easily understand a machine's being constituted so that it can utter words, and even emit some responses to action on it of a corporeal kind, which brings about a change in its organs; for instance if it is touched in a particular part it may ask what we wish to say to it; if in another part it may exclaim that it is being hurt, and so on. But it never happens that it arranges its speech in various ways, in order to reply appropriately to everything that may be said in its presence, as even the lowest type of man can do. And the second difference is, that although machines can perform certain things as well as or perhaps better than any of us can do, they infallibly fall short in others, by which means we may discover that they did not act from knowledge, but only from the disposition of their organs. For while reason is the universal instrument which can serve for all contingencies, these organs have need of some special adaptation for every particular action.

The notion that 'animals are machines' lies at the core of the Cartesian view. Descartes coined the phrase to express this opinion: Bete machine. There is a reference to this phrase in one of the earliest documents produced in the French Age of Enlightenment: Man a Machine, published in 1748 by Dr La Mettrie. To La Mettrie, learning to understand a language - i.e. learning to use symbols - is to become a human being. Culture is what separates man from the animals. La Mettrie means that thinking should turn from general abstractions to consider the concrete, the details. It is the models to be found in the concrete examples we meet that nurtures us in a culture. According to La Mettrie, a mind that has received poor guidance is as an actor who has been spoiled by provincial theatres, and goes on to say that the separate states of the soul are in constant interaction with the body. La Mettrie struck a chord that was to characterise the contradictory views of knowledge during the French Age of Enlightenment.

Denis Diderot, leader of the French Encyclopedia project in the Age of Enlightenment, attempted to track down the paradox inherent in the perception of the way knowledge and competence are developed and maintained. On the one hand there is the belief that everything can be systematised and formalised in a symbolic logical notation. On the other hand there is Minerva’s owl which, although it first appears on the periphery of the project, when seen as a link with the current debate on technical change becomes vitally important to further development.

Denis Diderot says this: ‘If I knew how to speak as I think! But as it is now, I have ideas in my head but I cannot find words for them.’

To be at once within and standing apart from oneself. To observe and be the person who is observed. But thought is like the eye: it cannot see itself. How do we shape the rhythmic gestures of our thoughts? Here we can establish a link with Ludwig Wittgenstein’s philosophy of language, which is currently becoming more prominent in an international debate on technical advance.