Chapter 4
Artificial Ethics:
A Common Way for Human and Artificial Moral Agents and an Emergent Technoethical Field

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ABSTRACT

A new morality is generated in the present scientific and technical environment, and a new ethics is needed, an ethics which may be found in both individual and social morality, which can guide a moral evolution of different cultural fields and which has the chance to keep alive the moral culture itself. This chapter points out first the scientific, technical, and philosophical premises of artificial ethics. The specific, the status, and the role of artificial ethics is described by selecting ethical procedures, norms, and values that are suitable to be applied both by human and artificial moral agents. Moral intelligence as a kind of practical intelligence is studied and its role in human and artificial moral conduct is evaluated. Common features of human and artificial moral agents are presented. Specific features of artificial moral agents are analyzed. Artificial ethics is presented as part of the multi-set of artificial cognition, discovery, activity, organization, and evolution ways. A meta-ethical survey establishes the place of artificial ethics within the group of new and emergent ethical fields of the computer culture. Natural and artificial evolution are studied from an interdisciplinary and even from an intercultural perspective, and the co-evolution of human and artificial moral agents is sketched by means of technological and social prognosis.

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PREMISES FOR AN ARTIFICIAL ETHICS

A new morality, freer in spirit but at the same time more strictly regulated, is generated in the present scientific and technical environment, by social and cultural evolutions which keep their own moral dimension in more implicit ways. The new ethics which may found both individual and social morality, which can guide a moral evolution of different cultural fields such as science and technology, and which can also maintain and continue the moral culture itself, will be an artificial ethics when compared to the traditional one.

When we think of artificiality we have to take into account two basic truths: 1) society is the first artificial "object", and all humanly established realities are consequently artificial; 2) perhaps the majority of contemporary results of human thinking and acting can be named artificial in comparison with all the past human performances.

For the specific field of moral culture, P. Danielson (1998) showed that "important parts of morality are artificial cognitive and social devices" (p. 292). From a larger cultural perspective, even J. Bentham, who described "the whole fabric of morals and legislation" can be cited. Another authoritative argument is furnished by Aristotle: he writes in his *Politics* (II. 5) about the automatic tools and installations of Daedal and even about the mentally controlled tripods created by Hephaestus, which served the "band" of gods. We cannot forget, in this context, Plato's *Republic*, where the oldest cyberneticist offered the first description of society as a human and artificial design and product, together with a project of a perfect but human organization of public affairs. As we know, he proposed and used a few efficacy means and criteria to build his "word-made" city.

If Aristotle emphasized the material and practical results of human or divine creativity, some very important and always necessary components, instruments and techniques of every activity – the intellectual ones - were earlier identified by the sophists who studied language as a „technique of techniques", by the Old stoic school that practiced the first elements of logical calculus and by Euclid's commentators who synthesized a lot of heuristic methods. Al-Khwarizmi later created working algorithms for any field of calculus (820 AD) and medieval mnemonics used linguistic algorithms in learning processes.

We are using here a general, but also not a soft meaning of the term "artificial". By "artificial" we mean any completely new social outcome of human activity, either theoretical or practical, such as a concept, a method or artifact, a social body, a system of relations or an institution, therefore, any kind of real mental construction or material achievement. At the same time, even if we are situated in the realm of values and spirituality, the term "new" is taken in its hardest sense and meanly means "unprecedented".

As an outstanding intellectual invention by which something entirely new was established, we can here mention a worthy successor of the above-named divine devices: the logical machine of R. Lull, made in order to produce all the possible (religious) knowledge by a mechanical method – his *Ars Combinatoria* (1275). This machine, made of paper, was effectively used for automatic but mechanical generation of religious truth.

We can include in the same class of „artifacts" or artificial products the first digital computer conceived by Pascal - the Pascaline (1642, 1645) - as well as his mechanical computer (1624).

The artificial universal language was coined by Kircher in *Polygraphia nova* (1663). In the same intellectual register we can add his *Ars magna sciendi sive combinatorica* (1669), alongside his cryptographic activities, his automata, as well as an image-projector or a magnetic clock and other magnificent inventions.

Leibniz was the more famous author of *Dissertatio de arte combinatoria* (1666) but also the inventor of a computing machine for the four mathematical operations, in different variants (the first in 1671). He also developed the binary