

MeBIT – an interdisciplinary project on "*information*" metaphors and their impact on the idea of man

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Abstract: MebIT is an interdisciplinary project granted by the German Ministry for Education and Research (BMBF). Its focus of research concerns the logical interconnections and relationships which combine the Informatics, Information Technology (IT) and Information Systems (IS) fields with other scientific branches – in particular biology/genetics and philosophy – and which are established through the extensive use of metaphors from these fields (like *information*, *programming*, *code*, *replication*, etc.). The technical endowment of almost all public domains by IT and IS might be accompanied by a mental shift – triggered and promoted by metaphoric language and might ultimately lead to the formation of new images of man.

Our research group is composed of four subgroups, dealing with these questions from an information-theoretical, genetic, anthropological and technique-philosophical point of view. Some preliminary results of the joint work of these groups are demonstrated by three interconnected posters.

Informatics

The first subgroup discusses the question whether the concept of information as, e.g., formulated by Shannon in his *information theory*, is strong enough to provide a basis for a complete description of communication processes. It turns out that this concept is rather narrow, but for a larger scope there exist numerous interpretations covering – among others – technical, communicational, educational, mental, and scientific aspects. The authors reconstruct some of the most important interpretations and discuss them from the Informatics perspective. Based on corresponding interpretations, a critical glance on current trends in human science and society is taken – focusing on the now popular concept "*information society*". Both chances and risks are considered but the risks deserve special attention since they are rarely discussed in mainstream publications on this topic. Some important aspects are illustrated by concrete examples from a broad spectrum of applications, offering a comprehensible approach to the matter.

Genetics

Following the hint that the term “information” serves as a metaphor even within the realm of information theory itself, the second subgroup asks for the historical and methodical role of the term in biosciences, particularly in genetics. A short historical survey shows that the information-based description of the gene, beginning in the early 1960-ies, had a significant effect on the concept of the gene. “Information” is a highly complex metaphor, which is applicable e.g. for the description of substances, processes, or spatiotemporal organisation. Thus, information can be understood as a functional particle of many different language games – some of them belonging to sub-disciplines of genetics and biochemistry and some of them belonging to linguistics and informatics. Against this background, the popular view of “programmable”, “determined” or “fabric-able” organisms (especially humans) can be discussed in a new way.

Philosophy and methodology

The third working group, dealing with philosophical problems of metaphorical constructions gives an analysis of the “logical grammar” of catachretic phrases – a task which seems to be relevant, as long as metaphorical or allegorical phrases are assumed to obstruct scientific communication. An alternative can be identified in the constructivist’s approach, where metaphoric expressions are taken as a starting point for the explication of scientific language games. The authors follow this approach when dealing with metaphorical applications of the term “information” within biological narratives.

The resulting methodological insights are applied by reconstructing the role of mirror neurons for the explanation of human behaviour. Originally discovered in macaques, there seems to exist a similar system in *Homo sapiens*. Referring to their specific function in the context of visuo-motor-control we discuss the question what is meant by the expression: “The neuron x mirrors the action y by perception z“ from a methodological point of view. An indispensable presupposition of the functional description of these neurons is the reference towards an inter-subjectively controlled dialogue-situation, within which the adequacy of the functional ascription itself can be evaluated. We propose a model-theoretic explication of the metaphorical phase that “mirror neurons actually mirror the behaviour of communication partners”.

Technology assessment

The fourth task group aims at assessing the impact of technology on prevailing images of man. In this context technology can be interpreted as an anthropological constant for constructing an environment in which humans can survive. Acting in the field of technology is to act rationally and purposeful, i.e. in the framework of a means-end relation. Its primary aim is coping with “experiences” (Widerfahrnisse) by means of tool usage. Like technology, language can be reconstructed as a symbolic form and thus as a technological means resp. as a tool so that the employment of metaphors can also be described as an employment of tools.

While philosophy of technology reflects the impact of technology on man it proposes different ideas of him. Those ideas can be reconstructed as a means used by man for achieving new self-conceptions, which in turn have to become subject to ethical discourses.

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