

Reductionism, Determinism and Culture

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Futures can be different. “GENius future” is just one of them. All technologies and their products, not just genetics, can cause undesirable and unintentional consequences. Unpredictability of social development is related to unpredictability of new scientific knowledge and its impacts on society. It is also related to the uniqueness of the object of research as well as with historical and evolutionary nature of the object of research. The end of Laplace demon kind of determinism does not mean the end of all types of determination. It is wise to differentiate three types of determinism: strong, moderate and weak. Strong genetic determination is rather an exception than the rule. It was exceeded by the progress of genetics itself. Introduction of conception of nonlinear dynamic systems has changed also the understanding of determinism. Reductionism has different meanings: ontological, methodological, global and partial reductionism. Reductionism is monocausal determinism since in the complex reality there is only plural causality. We may not equalise reductionism with the process of abstraction. Reductionism at the levels of comprehension can have practical consequences. To some extent it is comprehensional and methodological necessity in the context of the complexity of understanding, but it is not sufficient any more. It is merely a moment of holism. We are receiving the same message from different disciplines: the nature is complex; it is network of mutually dependent interactions.

Understanding of the complexity of nature must be followed by the accurate mechanisms of regulation, management and decision making, especially when those mechanisms are related to the risk of use and changing of nature. Risk has social, ethical and epistemological aspects. It is related to the precautionary principle.. We should not disrespect this principle although there is a possibility of its abuse. The fact that scientific results depend on the context makes it even harder to generalise the estimation of risk and safety. Greater precaution is necessary with use of genetic technologies. Profit orientation doesn't pay enough attention to the research of risk of abuse of genetics technologies. We have to differentiate anthropogenic sources of undesirable consequences of abuse of genetics from ontological undesirable and unintentional consequences.

There are not just ethical, legal, political aspects of the use of genetics but also the ecological ones. These bring risks for human and their health. Such risks are based on the collision of the actuality of nature and technical possibilities. There are many unknown issues about the consequences of human interventions into “flexible genome”. Our limited knowledge demands to respect the precautionary principle . The use of genetics results has led to the vision of “geneticization of society” which takes place in the context of capitalistic, marked, competition, aggressive society. The use of genetics results gives human new means for his auto-determination. The possibility that man can change his biological nature according to his own criteria and wishes raises a question what the man – who is the source of this wishes and criteria – is like.