

Aby však nevzniklo nedorozumenie, musím upozorniť, že autorka uznáva, že intenzionálna logika má svoje obmedzenia, pričom rešpektuje prednosti hyperintenzionálnych systémov ako TIL. Intenzionálnu logiku si zvolila, pretože jej prostriedky sú podľa nej dostatočné pre jej prácu. Vzhľadom na charakter prezentovaných výsledkov sa ukázala daná voľba ako oprávnená.

Často vzniká problém spôsobený tým, že si autor alebo vedec neuvedomí obmedzený obor platnosti predpokladov a zákonov nejakej teórie a bezbreho ich začne používať aj mimo tento obor. Podobný problém vzniká, ak autor pri predkladaní svojich téz neupozorní na obor ich platnosti. Recenzovaná monografia je z tohto pohľadu výnimočná. Autorka vždy dôrazne upozorňuje na ohraničený obor svojho skúmania. Rovnako dôrazne upozorňuje, že zvolené nástroje logicko-sémantickej analýzy nemusia byť a nie sú vždy tými najlepšimi. Naproti tomu však ukazuje, že tieto nástroje použité adekvátnym spôsobom na ohraničenom obore skúmania vedú k zaujímavým výsledkom. Monografia Barbory Geistovej Čakovskej je toho dôkazom.

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Stephen Hawking – Leonard Mlodinow: *The Grand Design*  
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Stephen Hawking has become a notable icon of contemporary cosmology and theoretical physics. One of his indisputable contributions is that he is systematically trying to bring science to the general public and attempting to range scientific areas into a broader philosophical framework. Despite this, or rather because of this, his claim to be a philosopher raises some embarrassment. There is no doubt that Hawking is a leading physicist, but what kind of philosopher is he?

I will set out from his latest book, *The Grand Design*, written together with physicist Leonard Mlodinow (Czech edition: Hawking – Mlodinow 2011). At the first sight its name strongly evokes the concept of Intelligent Design. Is Hawking actually advocating intelligent design, or is it just a marketing gimmick? Of course, the second is correct. However, there arises a question, to which extent are other Hawking's and Mlodinow's formulations rather "marketing gimmicks".

But let us approach Mlodinow and Hawking's philosophizing. At the very beginning, the authors surprise us by claiming that "philosophy is dead now...".

This categorical statement provoked irritated reactions, and not only among philosophers (among others Jaroslav Peregrin; cf. Peregrin 2011). I am aware that many branches of philosophy have nothing to say to physics, and perhaps to science as a whole. However, any adept of philosophy knows that there is no “one philosophy”. There are just teachings of various philosophers, philosophical schools and movements. Do Hawking and Mlodinow believe that all philosophical effort belongs to the past? That all philosophical questions mentioned in the book – existence of the world, meaning of life, role of Creator, etc. – can be solved by “living” physics instead of “dead” philosophy?

The whole text unfortunately exhibits real contempt for philosophy. And this is not because of the authors’ knowledge of philosophy, but because of their ignorance.<sup>1</sup> The parts dealing with ancient philosophy are full of inaccuracies and misinformation. Some examples: Epicurus is said to disagree with atomism, but the opposite is true (p. 32 in English / p. 30 in Czech edition). Epicurus was a proponent of atomism; he learnt about it from a certain Nausifanes, accepted it and developed it. He disagreed only with its hidden absolute determinism. (This is why he introduced a kind of uncertainty which is nice reminiscent of the indeterminacy of quantum mechanics. This fascinating fact, however, is omitted in the book.) The justification for Aristotle’s approach to atomism is also misleading. Aristotle did not reject the concept of atoms because “they could not reconcile with the notion that human beings are made up of inanimate objects without a soul”, as written in the book (p. 32/30). It cannot be so because the atomists accepted soul (they even claimed that the soul is composed of small round atoms). The opinion that the Greeks did not discover the rules of scientific procedure is at least controversial. Perhaps all modern science is built on the Aristotelian form of thinking, and Aristotle’s formal scheme has become a model for writing of scientific texts. The assertion that Aristotle rejected the idea of science based principally on observation is also not valid. On the contrary he was engaged in natural science that was based on observations. Observations also served as a basis for his astronomical conceptions. Aristotle is further said to have accepted geocentrism for certain “mystical reasons” (p. 55/48). Where does this view come from? Geocentrism is nothing but extended egocentrism, and egocentrism is inherent to all living

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<sup>1</sup> Also many statements referring to physics are so oversimplified that they are not correct. For example in the part describing initial inflation of the universe (p. 167 in English / p. 138 Czech edition) it is written that expansion was “much faster than light speed”. However, speed of expansion cannot be compared with speed of light, the first being relative speed ( $\text{sec}^{-1}$ ), the second absolute ( $\text{m}\cdot\text{sec}^{-1}$ ).

creatures, including us. At first glance it looks simpler, and more natural than any other “centrism”. No “mystical reasons” are needed.

Furthermore, Laplace is said to have been the first to clearly formulate “scientific determinism” (i.e., absolute determinism). It is not commonly known – not only among physicists – that the same idea was formulated by the Stoics two thousand years before – see fragment SVF II, 944 (e.g., Long 1986).

“There is no concept of reality which would be independent of any concept or theory” (p. 57/50). This approach, popularized some years ago by the Matrix movie, had also been formulated in antiquity. We should particularly mention the Sophists, then Immanuel Kant, and from contemporary period we should mention W.V.O. Quine (“ontological relativity”), Gregory Bateson, and others. It is also unacceptable to claim that Plato “first questioned the essence of reality”. Long before him, this had been done by Parmenides (“Consideration and being is the same...”) and many Sophists. Of course, also by the Buddhists, but the East is generally ignored on the West.

The claim about the death of philosophy is framed by a text containing inaccuracies and misleading statements. Philosophers who oppose the verdict on the death of philosophy furthermore point out that Hawking with Mlodinow are also philosophizing and repeating mistakes committed by philosophers before them.

In particular, Hawking’s radical and inadequately self-reflected reductionism is hidden in the central concept of the “theory of everything”. Taken literally (not only as a marketing gimmick) it is logically inconsistent, if there is no specification of what “everything” means. “All” or “everything” does not form any set (in mathematical sense) that can be unambiguously defined and summarized. It is a contradictory pseudo concept, as was demonstrated, e.g., by the Russell paradox more than one century ago.

Further, Hawking’s final declaration that our universe was created out of nothing (p. 227/187) can sound impressively and looks also in accordance with the Book of Genesis (or rather with its interpretation from 2<sup>nd</sup> century). However, Hawking obviously assumes not creation from “real nothing”, but “creation out of empty space”. Nevertheless, since the days of general relativity and quantum electrodynamics, empty space (vacuum) has not been “nothing” (really empty, i.e. a void), but “something” – a gravitational field, a sea of virtual particles, etc. Spontaneous creation is therefore not real “creation”, but only “mutation”, as Thomas Aquinas would say. Therefore it cannot be the ultimate answer to the question “Why is there something rather than nothing”. It only shifts the question to “How did the empty space arise?” (Similar is true for divine creation, because “How did God emerge?”).

One of the main aims of Hawking's "non-philosophical philosophy" was, perhaps, to show that thanks to M-theory (the importance of which is overestimated according to some physicists) there is no need of Creator for an explanation of physical world. However, a similar opinion was formulated two centuries ago by Pierre Simone Laplace in his dialogue with Napoleon held over his "Celestial mechanics". Hawking's considerations are, of course, based on a deeper level of physical reality. But did Hawking really think that the existence or non-existence of God can be proved by means of M-theory or other physical theory?

Fortunately, not all branches of philosophy are dry and barren, but our authors are not acquainted with them. However, there is one thing in which Mlodinow and Hawking are unfortunately right. The gap between philosophy and science is widening. Most philosophers do not understand science. And *The Grand Design* testifies that even prominent physicists do not understand philosophy.

Despite my critical remarks, I would like to stress that the Hawking and Mlodinow's book is definitely interesting and worth reading (especially for not very demanding reader). I only regret that such respected authors spread into the public domain views that degrade philosophy as a whole and support narrow scientism.

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