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PARALLEL UNIVERSES AND THE DIVINE BEING AS A STATISTICAL POSSIBILITY

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Abstract. Recent advances in astrophysics have led to an increasing credibility of the infinite space hypothesis. But, as cosmologists argue, in infinite space even the most unlikely events must take place somewhere. On the other hand, since our „universe" (i.e., the observable universe or „Hubble volume") is a finite one, it follows that this is only one of the many parallel universes which co-exist as parts of a larger „multiverse". This paper is an attempt to identify some possible consequences on the philosophical interpretation of the design argument, once accepted the multiverse hypothesis.

Keywords: Universe, Multiverse, Argument from design, Fine tuning, Anthropic principle/Univers, Multivers, Argumentul proiectului divin, Reglajul fin, Principiul antropic

1. Introduction

The word „universe" seems to have a very strange peculiarity: although it traditionally means all that exists, the physical world seems to enlarge at the same rate with our increasing efforts to scientifically investigating it.[2] Stimulated mainly by recent developments in cosmology and particle physics, and also by the controversial many-worlds interpretation of quantum theory, astrophysicists gather day by day new pieces of evidence, which augments the credibility of the infinite space hypothesis. As soon as it is taken seriously, this proposal raises serious conceptual questions, so it proves to be one of those research themes capable to initiate major changes in our conceptions about the science itself and, simultaneously, to reignite old disputes in natural theology. Cosmologists like to emphasize that in an infinite space even the most unlikely events must take place somewhere, so that each of us can have multiple copies somewhere in a distant world, or, why not, it could exist many distant worlds in which the proofs of a divine design could be by far more manifest than in ours.[3] But *where* exactly

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[2] „Although the word 'universe' literally means all that exists, the longer we have studied the world, the larger it appears to have become. /.../ the usage of this term has changed as we have progressed from the geocentric to heliocentric to galactocentric to cosmocentric view" (Carr & Ellis).

[3] For a comprehensive investigation of the concept of infinity, see the book of Graham Oppy *Philosophycal Perspectives on Infinity* (2006). According to him, it is important to notice that „If concepts of infinity could have certain kinds of application outside the realm of logic and

would finally happen all those possible events, since our Universe (meaning, the observable Universe or the "Hubble volume"), despite its state of accelerate expansion, is seen as finite in its dimension? More and more cosmologists claim that there is only one plausible answer to this question, namely that the universe we currently talk about is just one in a multitude of other parallel universes, coexisting as parts of an all encompassing *multiverse*. In other words, the idea is that our universe has to be seen as just one instance of a particular natural kind. If we were to give credit to Max Tegmark, one of the founders of this new cosmological approach, this idea is so simple and evident that there is no point to ask whether parallel universes exist or not, but we should rather be interested in how many levels the multiverse has (Tegmark p. 41).

Nevertheless, many important figures in contemporary cosmology are not enthusiastic about embracing the multiverse hypothesis, which was declared by George Ellis as „the most dangerous idea in science"[1]. Indeed, although most scientists agree this is a hypothesis with an indisputable *explanatory* value, its critics emphasize that its *scientific* value is not obvious enough. Anyway, if the idea of multiverse is mostly the result of mathematical imagination working for the benefit of cosmology, its implications go far beyond cosmology and physics. We have to mention, for example, that many contemporary theologians consider that cosmology and evolutionistic biology can be declared "the closest scientific relatives of theology" (Polkinghorne p. 23), as long as this fields are seen more often than not as scientific domains in which empirical testing is not possible. As it has already been noticed, the encounter of science with theology and religion seems to be inevitable when interpreting the cosmic history, viewed equally as evolution of matter and life.

I don't intend to examine this relation here. I only want to identify how the new ideas discussed in contemporary cosmology – the fine tuning, the anthropic principle, the multiverse – could echoe through philosophical interpretations of some recent formulations of the argument from design.

2. Arguments for the idea of a divine project

Empirical arguments for the existence of God can be divided in two main types: cosmological arguments and teleological arguments. Unlike the *cosmological*

mathematics, then the world would be a strange and different place – but there is a vast difference between *strange* and *impossible*" (p. 3).

[1] George Ellis, cited in (Gefter 2010). Ellis is equally skeptic about using the concept of infinity in physics: „Infinity is an unattainable state rather than a large number /…/ and it is a mathematical rather than a physical entity" (Carr & Ellis p. 3.23). In his article ironically titled „Universes galore: Where it will all end?" Paul Davies tries to show us that „although «a little bit of multiverse is good for you», invoking multiverse explanations willy-nilly is a seductive slippery slope". He also challenges „the false dichotomy that fine-tuning requires the existence of either a multiverse or some sort of traditional cosmic architect" (Davies 2007).

arguments, which start from the existence of contingent things and conclude with the existence of an omnipotent designer and creator, capable to account for the actuality of all existing things, the *teleological arguments*, also known as *arguments from divine design* or *arguments from intelligent design*, take as their premise the presence in the world of many sorts of things that might be viewed as having very special characteristics, and conclude with the existence of a designer intelectually capable to design those special things. As Eliott Sober says, the design theorists „describe some empirical feature of the world and argue that this feature points towards an explanation in terms of God's intentional planning and away from an explanation in terms of mindless natural processes" (Sober p. 25). In other words, the teleological arguments are focused on identifying the traces of an operating intelligence in the structures and behaviours of nature itself.

I think it is quite relevant that some new versions of the teleological argument are presented as arguments from *intelligent* design. Although they share the same ultimate finality with all teleological arguments – namely, founding the idea of God's existence – in its more recent versions this line of reasoning has a more elusive target. That is the reason why its immediate objective is not founding the idea of a monotheistic god, as it happens in classical versions, but is limited to supporting only the idea of a supernatural designer, some sort of a divinity whose identity is to be determined on subsequent data and reasoning.

In its classical forms, the argument implying the idea of a divine project is basically an analogical inference, built on alleged parallels between human artefacts and some natural things or facts, whose characteristics can be seen as teleological expressions of an intelligent project: in the same way as the artefacts are the intentional results of human action, some natural entities (structures, properties, relationships etc.) can also be regarded as intended results of a supernatural intelligence acting in the world. The conclusion of this argument take the form „it is very likely that the natural entity E has the teleological properties P precisely because it is the result of an intelligent project, similar to human acting". This kind of teleological argument by analogy has been convincingly criticized by David Hume, who tried to point out that, even if it could indicate an acceptable conclusion, the argument does not establish the attributes of the designer or its uniqueness, and in this sense it would not at all imply a traditional conception of God.

Grounded on the idea that our inferences are always guided by our explanatory considerations, the so-called „inference to the best explanation" represents another possible version of the arguments from design. In other words, it is based on the idea that we start from available evidence and infer what would be the best explanation for that specific empirical evidence, if true. In this configuration, the arguments of the divine project start from the premise that some of the natural things with aparently teleological characteristics can be explained on the hypothesis of being the result of an intelligent project, and since the

hypothesis is conssidered to be the best possible explanation, the conclusion favours the probability of those natural things being the effect of an intelligent project. This kind of arguments are therefore based on the idea that, whenever a theory or a hypothesis with superior explanatory virtues is available, we can interpret that specific explanatory superiority as a decisive epistemic ground for accepting it and rejecting the other competing theories.

Despite the controversies surrounding the most appropriate way to frame the argument from design, many authors are ready to agree that this is best expressed as a probabilistic inference. Una dintre exprimările acestui argument ia forma unei inferenţe probabiliste de tip bayesian [4]:

(1) Given that the development of life implies a special fine-tuning of many constants of the universe, but assuming that a supernatural designer couldn't exist, the probability for the universe to be favorable for life is very low.
(2) Given that the development of life implies a special fine-tuning of many constants of the universe, and assuming that there is a supernatural designer, the probability for the universe to be favorable for life is quite high.
(3) Given that the development of life implies a special fine-tuning of many constants of the universe, the probability that there is at least one supernatural designer is considerably higher than the probability of the premiss (1).

Conclusion: Given that the universe is favorable to life and given that the development of life implies a special fine-tuning of many constants of the universe, the probability that there is at least one supernatural designer is quite high.

In order to make this argument effective its supporter has to express his opinion on the hypothesis of the divine project – the hypothesis involved in the conclusion – *prior* to the formulation of his argument. So „the proponent of a Bayesian design argument cannot remain silent on the issue of the prior probability of the design hypothesis" – he must say something about the comparison between the probability of the design hypothesis and the probability that life is possible even when there is no design (Manson p. 7). This prior evaluation of probabilities is considered the main problem which undermine the Bayesian inference.

According to Eliot Sober, the problems generated by the Bayesian inference could be avoided, provided that the argument from design is founded on plausibility, which turns us back to comparing the value of two competing hypotheses as two possible explanations for the same thing. Two hypotheses are made starting from the observation that a certain thing exists in nature – one claiming that it is the creation of an intelligent designer, the other one claiming that it is the result of mere chance. Unlike other arguments of the same type, to avoid the problem of prior probabilities the likelihood version of the design argument does not claim that the design hypothesis is more probable than the

hypothesis of life evolving as a result of a mindless chance process.[1] Following the proposal of Graham Oppy, such an argument could be put in the following terms:

(1) If the parametres of the universe are not tuned for the evolving of life, but there is an intelligent designer, the probability to exist life in the universe is higher than the probability to exist life in the universe when the parameters of the universe are not tuned so fine as to sustain life and considering that the universe is the product of a mindless chance process.
(2) Consequently, we should prefer the hypothesis that our universe is the product of intelligent design to the hypothesis that our universe is the product of a mindless chance process, at least given the evidence that if some parameters of the universe weren't fine tuned, then there would be no life, and given that there is life in the universe.

So, given the evidence of fine-tuning, we have to accept the conclusion that the probability of intelligent design is higher than the probability of any competing hypothesis using the same data.

3. Fine-tuning, parallel universes and divine design

Even if the concept of multiverse was not motivated by an attempt to explain the „cosmic coincidences" that define the so-called anthropic fine-tunings, now these two ideas seem to be „inherently intelinked": „For if there *are* many universes, this begs the question of why we inhabit this particular one, and /.../ one would have to concede that our own existence is a relevant selection effect" (Carr p. 6). This is the reason why many cosmologists are ready to accept that the multiverse hypothesis provides „the most natural explanation of the anthropic fine-tunings", an explanation that can intelligently avoid the idea of a supernatural fine-tuning. On the other hand, if there is no direct evidence for the multiverse hypothesis, the fine-tuning could be somehow interpreted as an indirect argument for its plausibility.

Most scientists agree that the multiverse hypothesis has a big *explanatory* value, but on the other hand there are controversies regarding its *scientific* value or, more exactly, about its capacity to conciliate explanatory power with testability. The main objection to the multiverse idea is that it cannot be empirically tested, and by this very fact it is not real science – or, to cite George Ellis, „it may be true, but it cannot be shown to be true" (Carr & Ellis p. 2.35). To accept such an idea means to prefer a high explanatory power to poor testability or

[1] Likelihood arguments „don't tell you which hypotheses to believe; in fact, they don't even tell you which hypotheses are probably true. Rather, they evaluate how the observations at hand discriminate among the hypotheses under consideration" (Sober p. 29).

even to non-testability and, in this sense, to accept an alteration of the very meaning of science.[1] But Ellis is decided to deny even the alleged explanatory power of the multiverse hypothesis, when he argues that even if it offers an „empirically based rationalization for fine-tuning", it „cannot make any testable predictions because it can explain anything at all": if all possibilities would exist somewhere, they could explain all imaginable observations, so it would be a hypothesis impossible to refute.

The multiverse hypothesis was welcomed by those who are troubled by the incapacity of science to offer credible answers to those elusive problems that transgress the boundaries of well established disciplines. It was considered the first genuine and aplausible scientific alternative to the idea of the divine design. Indeed, when it is examined in the light of the observational selection effect, the multiverse proposal may be accepted as a plausible alternative to the thesis that our universe exhibits all sort of properties that prove it is the product of a very careful supernatural designer. On the other hand, theologians are more inclined to see it as a kind of last refuge for those inveterate atheists which obstinately refuse to accept all the arguments from design.

It is important to emphasize once again that the multiverse hypothesis is a very sophisticated exercise in probability and statistics. Its critics try to speculate this quite problematic origin and argue that once accepted the idea of an infinite universe, it is very difficult to manage any meaning of probability, since it is impossible to conceptualize the comparison of infinities and taking into account that in an infinite multiverse anything that could happen would effectively happen not just once, but an infinity of times.

The defenders of the multiverse proposal tries to convince the skeptics that this origin does not undermine neither its theoretical, nor its empirical value. As Bernard Carr argues, the multiverse is an implication of a probabilistic argument whose conclusion is the idea that the universe „is no more special than it need be to produce life".

Even if we can observe only one sample of the multitude of parallel universes, we still could refute the multiverse hypothesis at a convenable confidence level, and anyway „statistical prediction still qualify as science".[2] Our disconfort with the idea of the multiverse is due to the fact that it implies „a new perspective on the nature of science".

[1] George Ellis, for example, says that inasmuch as we can't imagine direct observational tests for the multiverse proposal, accepting it would imply „altering the meaning of science": „In this context one must re-evaluate what the core of science is: can one maintain one has a genuine scientific theory when direct and indeed indirect tests of the theory are impossible?" (Carr & Ellis p. 2.33).

[2] Carr pleads for a Bayesian perspective on probability: „a core difference between the Bayesian and the frequentist views is the former's willingness to make inferences from single, and possibly unrepeatable, pieces of data" (Carr 2.35).

Conclusions

(1) The multiverse hypothesis can be considered the last phase of the copernican revolution, which determined mankind to dramatically revisit its place in the world by abandoning geocentrism for heliocentrism, geocentrism, galacto-centrism, cosmocentrism and, finally, for the idea of an infinite magacosmos. The multiverse hypothesis seems to imply the reevaluation of our perspective on science, and apparently this is the main cause of apprehention, in more reluctant if not conservatory circles. Therefore, it has a special significance for both the scientific knowledge of nature and our view on science, and can be seen as the prefiguration of a major methodological and epistemological paradigm shift.

(2) Even when the arguments from design have been more rigurously assembled or rebuilt on probabilistic inferences, and taking as premises the idea of fine tuning, they do not seem to gain more power and to be compelling for scientists. It is also true that scientific arguments based on the multiverse hypothesis have not been considered as ultimate by any supporter of the supernatural design.

(3) We saw that more recent arguments for the idea of divine project are largely built using probabilistic inferences. On the other hand, we noticed that the multiverse hypothesis is an intricate exercise in probabilities and statistics. Athough this is the field of a remarcable mathematical conceptualization, it is well known that this is also the field of quite poor and very controversial philosophical interpretations of the very concept of probability. Definitely, the multiverse proposal and the contemporary formulations of the arguments from design will benefit from any clarifications of this concept.

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