

Richard Dawkins, science and the meaning of life

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Based on a paper presented at COSAC2013, Tabor College, Adelaide 19-21 July 2013. Revised version January 2013.

Abstract

In this essay I will attempt to convince you that the world of science is a world of constructs, not a pre-existing world, and therefore certainly not the world we actually live in. So when Richard Dawkins claims, in his recent TV documentary series, *Sex, Death and the Meaning of Life*:

More and more of us now do not believe in God, or life after death. We live, and then we die, and that's it. We are born by chance, and our lives are shaped by chance events... Many people have struggled to come to terms with the reality of a **purely physical universe** [bolding added].

he is actually the victim of a cruel, although unintentional, hoax. Richard's purely physical universe is of course none other than the latest version of the age-old world-view of universal mechanism – the universe as giant clockwork machine – now, however, no longer with God, the unmoved mover, moving it; just a disembodied, blind watchmaker, at the controls.

If not machine (the human construction par excellence), then what? Well, the obvious candidate for an alternative, non-mechanistic model for our universe is an organism. In the second part of the presentation I will explore the possibility that a model of universe-as-organism might point the way to a much more plausible account of three key questions: the Big Bang, the emergence of life on earth, and organic evolution. We will end up finally, not in a basically dead, physical universe, but in a living universe, one in which the question of meaning, contra Richard Dawkins, takes on a whole new complexion.

Key words

Meaning, purely physical universe, universal mechanism, reductionism, hypostatization, organism versus machine, living universe

Introduction

Richard Dawkins – scourge of Christians and religious devotees the world over, high priest of the *new atheism* – believes, with the fervour and righteousness of many a fundamentalist, that we live in a purely physical universe, and that the only place we can look to for meaning in life is science.

'More and more of us', he expounds in Episode 3 of his recent TV documentary series, *Sex, Death and the Meaning of Life*, 'now do not believe in God, or life after death'.

We live, and then we die, and that's it. We are born by chance, and our lives are shaped by chance events. I know this is a difficult pill to swallow for many people, especially those for whom religion still has a hold over their lives. Many people have struggled to come to terms with the reality of a purely physical universe. So, how do we find meaning?

Of course if the universe we live in is indeed purely physical, then Richard is probably right: as far as meaning is concerned, it's either science or nothing. Yet in spite of the brave spin he puts on his version of the meaning of life, it invariably leaves us with only a pale shadow of meaning, a sort of evolutionary, existential pragmatism, in which we might carve out a relative degree of meaning individually, in leading some sort of vaguely defined *good life*, but in which the universe and life generally have no intrinsic meaning of their own.

But what if our universe is not in fact purely physical, if there's more to it than meets the eye, and atoms, forces, genes and quantum field fluctuations only tell part of the story? Well, if that's the case the question of meaning takes on a whole new complexion. This at least is the scenario we'll explore in what follows. If we can develop a decisive critique of the notion that the universe is purely physical, then the way might be opened to find a new way of thinking about our world, one in which life and meaning are no longer relegated to the margins, but take their place right at the centre of things.

Strain at a gnat and swallow a camel

Now what does Richard Dawkins mean exactly, when he says that the universe we live in is purely physical? To start with, it's definitely a no-God universe: whatever species of God or religion you believe in, Richard is out, first and foremost, to reject it. But more positively, he means a universe in which physico-chemical processes, described by the basic laws of science (eventually just physics), rule. Ultimately, all is just atoms and molecules, rearranging themselves in space, driven by physical forces. We humans, for example, are just interesting configurations of organic mega-molecules, somehow uniquely self-conscious; although this self-consciousness itself, in the final analysis, is just a physical phenomenon.

Richard Dawkins' purely physical universe is not a new invention. It is the age-old world-view of *universal mechanism* – the universe as giant clockwork machine – which has its roots as far back as the Atomists of

ancient Greece, and has gradually, through the Scientific Revolution and the Enlightenment, and into the modern era, become the reigning world-view of science. It is of course pure *reductionism*. The assertion is that, ultimately, all explanations of psychic, social and biological phenomena can be reduced to explanations in terms of purely physical processes, so that all such phenomena, in fact everything in the universe, are, ultimately, nothing more than physical processes.

Now reductionism is in fact highly contested in the philosophy of science. On top of that, it's not actually practised very much in science. Newton's laws of mechanics are not used, except peripherally, in chemistry, let alone in biology. For example, chemical and biological phenomena are usually explained and controlled in their own terms, with chemical and biological laws and explanations. The same goes for psychological and social science which are replete with theories on their own levels, and don't usually resort to physical, chemical or biological explanations. Complexity at any given level is explained by concepts and laws operating at that level, and while the reductionist view assumes we could somehow, in principle, jump down to explanations at a 'deeper' level of complexity, this is usually impractical and never even attempted¹.

Yet somehow the reductionist notion of a purely physical universe has seeped into the modern consciousness, and become the dominant metaphysic, with Richard Dawkins now its proselytizer-in-chief. As soon as we learn in early high school that 'all matter is made up of atoms', we start seeing the world in terms of little particles whizzing through space; and the more we find out about the power of science, and all the amazing technology and economic prosperity it has brought to our lives, the harder it is to believe that there is anything else out there, or in here (i.e. inside us), but atoms, forces and space-time. Even if we are believers, we still tend to see the world through scientific eyes, and God and spirituality end up relegated to some sort of separate dimension of existence. God might be 'in our hearts', but that's presumably because our hearts somehow connect us with a separate spiritual reality beyond the physical universe of our day-to-day lives.

Down the reductionist road

Mostly, however, as far as reductionism and the purely physical universe go, we strain at a gnat and swallow a camel. It takes only a fairly simple critique to find them wanting. My contention is that reductionism in science, properly understood, doesn't relate to the underlying reality of the universe at all, but is rather a feature of how science is done – that is, about scientific *method*.

Why indeed does science go down the reductionist road? Why does it always look for explanations of phenomena it studies in terms of some sort of underlying conditions? Why does it always go to the next level down, breaking whole phenomena down into constituent parts and trying

¹ Of course just speaking in terms of complexity (i.e. of parts in the whole) tends to implicitly assume an ontological priority for the parts, an assumption we will dispute shortly.

to reconstruct the operation of the wholes in terms of the operation of the parts? Simply because this is the only practical way to go. A whole phenomenon itself is impenetrable and inexplicable: it just *is*. Only the parts can provide a handle for science to get its hands on. Only through the parts can the whole be explained, controlled, manipulated.

Whether it is physical, chemical, biological, psychological or social phenomena, science employs exactly the same analytical, reductionist method, always looking to break wholes into constituent parts, searching for underlying causes which can be acted on and controlled. And this – it's actually tautological to say so – is precisely why science works so well. Reductionism in science initially, then, is all about the method.

The big mistake we make is to go further, and turn the method into a literal reality: to assume that because underlying explanatory levels give control, they are somehow thereby necessarily *more real*. The technical term for this mistake, this logical fallacy, is hypostatization: turning a concept or technique into an actual real thing. We fall into a trap we inadvertently set for ourselves, victims of our own success: because reductionism as method in science is so phenomenally successful, we just can't help going the step further in thinking that it's telling us about the way reality actually is.

Think about it: just because we can break a particular whole into parts, it doesn't then necessarily follow that the parts pre-exist, that they are the fundamental underlying reality. Some wholes, such as machines, and houses, and other human constructs for example, have an underlying reality of constituent parts, but that's simply because that's how we made them. But for many other wholes, and the obvious examples here are organisms, the parts (i.e. the cells) only come afterwards. In other words, an organism starts out as a single, undivided whole (i.e. a single cell) and then gradually differentiates into parts.

We'll make a lot of the example of organisms shortly. For the moment, think of a car windscreen. It starts as a single, continuous whole. But if we take a hammer and hit it, it will shatter into hundreds of small fragments. Do we then assume that this was how the windscreen was originally constructed – a myriad of small puzzle pieces of glasses carefully stuck together to form a single whole windscreen? Obviously not! The windscreen is fabricated as a single whole by a completely different process, and if we're looking to the shattered parts to explain the whole, we're looking in the wrong direction altogether.

The ultimate parts of our supposed physical universe were originally atoms, but now they're subatomic particles, eventually exotic creatures such as quarks and Higgs bosons. We describe these particles as the 'fundamental constituents of matter', and we even call them so: 'elementary particles'. But what if they are actually like the parts of a machine, or the pieces of shattered glass: *constructs* rather than pre-existing realities? When you think about it, elementary particles are only observed under highly artificial conditions, in massive high-energy particle accelerators and the like: we certainly have to do some pretty drastic things to matter to get elementary particles out the other end! Why in the

world would we automatically assume that they are pre-existing, naturally-occurring realities? Rather than saying 'matter is made up of atoms', shouldn't we say 'matter can be made up *into* atoms'? Rather than taking us to a deeper reality, it may be that science is taking us away from pre-existing realities, into a world of constructs – a wonderful, useful, totally objective world, but an artificial one nevertheless.

Organism versus the machine

So, if it is a fallacy to assume that because reductionism as method in science is so successful, it necessarily tells us about the nature of reality itself, then we need to backtrack. If the reductionist road is the wrong road to go down, let's just not go down it then!

But what exactly does it mean, to accept the practical usefulness of explaining things in terms of underlying parts and causes, *without* thinking this takes us to a deeper, truer reality? What does *non-reductive* thinking involve exactly, and what might a universe that is not merely physical – that is not explained in terms of the artificial constructs of science – actually look like?

This is a huge question, so for the moment I'll just try to point in one direction I think we could go, and save a more detailed account for a later discussion. The direction I have in mind is that suggested by the example we've already considered: the contrast between a *machine* and an *organism*.

A machine, on one hand, starts with a collection of separate parts, and is then constructed into a whole. The construction is performed externally, that is by the external, intelligent action of a human agent. An organism, on the other hand, appears to go in the reverse: it starts out a single whole (i.e. a single cell), then differentiates into parts. This differentiation is not driven externally; rather there seems to be some sort of inner cause or agency at work – it's as though the organism is constructing itself, according to some sort of pre-set plan.

Now, we could at this point look for for a reductionist explanation of how organisms work, for example in terms of the action of genes. We could also go for a teleological explanation, and see organic growth as the realization of some sort of pre-conceived design, with, for example, God, as the designer. But let's resist these temptations for the moment, and just take the machine-organism contrast on face value. What we're interested particularly in, is using the contrast to provide two different models of explanation, one reductive (the machine) and one non-reductive (the organism).

The reductive machine model of explanation we're already very familiar with; it's the one science uses par excellence. When applied to the universe as a whole, it leads to Richard Dawkins' purely physical universe. In earlier historical versions, an external agent constructing the machine universe was explicitly contemplated – God himself, no less – but eventually the notion of an external agent fell by the wayside, leaving still

a clockwork universe, but now with no clockmaker (or, as Richard says, only a *blind watchmaker*).

But doesn't the use of a machine model for the universe seem a bit odd, seeing that machines are human constructs, not naturally occurring? Surely, if we're looking for something that would serve as a good model for what the universe is like, it would be more logical to choose something that is naturally occurring, not something that was human-made and entirely dependent on human activity for its existence and operation? Now what do occur naturally, of course, are organisms.

So, then, aren't we tempted to try using, instead, an organism model for the universe? Of course we need to be immediately on guard here, against the same trap of hypostatizing that reductionist thinking falls into. When we start out thinking in this way, we need to do so only in the most general terms; that is, of the universe as a whole, which starts out simple, then differentiates into a complex structure of parts, driven by some sort of internal cause or agency.

Initially it seems almost outlandish to be contemplating the possibility that the universe might be more like an organism than a machine, and that there might be some sort of inner cause driving its development. But it may be that it only seems this way because we are so used to looking at the universe through reductionist eyes. If we remove these particular blinkers (to mix the optical metaphors), I think it's possible to see that some important things might start to make more sense.

For example, firstly, the Big Bang. Standard explanations in terms of quantum field theory notwithstanding, there could scarcely be anything more counter-intuitive than the notion that *nothing* could suddenly explode into a whole lot of *something*. But an organism is a perfect example of something that starts out as just about nothing, and grows quickly into a whole lot of something. Perhaps then the Big Bang is more like a *big differentiation*, in which matter and space begin to emerge out of a pre-existing unity, triggered by some sort of inner cause.

Secondly, the first emergence of life on earth might also be able to be thought of as a differentiation, triggered by some sort of pre-existing, self-organizing tendency or cause, which existed in matter right from the beginning. So, rather than seeing the first self-replicating molecules as being *built up* by random physical processes from simpler inorganic substances, in the so-called *primordial soup*, it may be that the first organisms *differentiate out* of that same soup.

Thirdly, perhaps the evolution of life itself can be thought of as a gradual differentiation into, rather than accumulation of, biological complexity. It may be that the inner agency driving the evolution of life is none other than the pure, blind, *struggle for survival* that Darwinism already identifies as a universal trait of organic life. As this struggle for survival confronts different environmental conditions and different potential ways of survival, it differentiates gradually, over the long time span of evolutionary history, into the myriad of species we see today. Random variation and mutation, along with natural selection, still control the outlines of the process, but

what drives it from within, and what is actually differentiating, is an inner agency, the powerful striving to live that is life itself.

The meaning of life?

Obviously this is only a brief outline of what a non-reductionist way of thinking might look like. But we can see immediately that as soon as we set out along this alternative road, the world we live in starts to look very different. Where previously we saw nothing but atoms and elementary particles, forces and geometrical space, we now see a *living* universe; one in which life itself, conceived of in its most rudimentary form as an inner cause or agency – a *vital impetus* (to borrow Bergson's famous expression) – is right at the centre of things.

What all this means *theologically*, of course, is a question for a much longer exposition. Let's round off the current discussion by returning to where we started, to the question of meaning.

The problem with Richard Dawkins' purely physical universe, as we have seen, is that while we might be able to carve out a limited degree of individual meaning for our own lives, this is against the backdrop of a universe for which the question of meaning is ultimately meaningless! Yet what really excites Richard, I believe, and what seems to hold out to him, and indeed to all of us, the prospect of real meaningfulness, is the *unity of all life* that Darwinism very clearly posits. If all organic life on the planet is descended from a small number, or perhaps even a single, ancestor organism, then we are all, literally, *family*. But then unfortunately he, along with mainstream science generally, having caught a glimpse of real meaning, backtracks down the reductionist road, and rather than seeing Darwinism as evidence for a living universe as a whole, reverts to a purely physical view of the universe, so that the glimpse of meaning turns out to be a mirage.

What we're contemplating here, however, is not a backtrack, but full speed ahead. If organic life is itself a differentiation from some sort of earlier, precursor form of life, and if this earlier form of life itself, conceived of as some sort of inner cause or agency, is what triggered the Big Bang in the first place, then we are, in a very profound and completely objective sense, *one* with the universe as a whole.

What we're considering here is still, solely, evidence from science. Method in science will always be, necessarily, reductionist, and it is only when we reflect non-reductively on the constructs of science, as we have tried to do in this essay, that we can start to see the true nature of reality. Far from being the sole source of meaning, science can only ever give us fleeting glimpses of it. In fact, it's probable that other fields of human endeavour – art, religion and philosophy, for example – are (as we have probably always thought anyway) much richer sources of meaning than science. So, finally, there is much to admire in Richard Dawkins' single-minded adherence to his personal vision of the universe, but he is simply not correct: we do not live in a purely physical universe, and science is certainly not the sole source of meaning in life.

Further reading

The argument for the world of science as a world of constructs is a version of the *objective instrumentalism* of John Dewey. See:

Dewey, J 1929 (1960), *The Quest for Certainty (Gifford Lectures 1929)*, Capricorn Books, New York.

For Bergson and the *vital impulse (elán vital)*, see:

Bergson, H 1911 (1988), *Creative Evolution*, trans. A Mitchell, Dover, New York.