

Emergence, Free Will and Magic

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Academic Philosophers are prone to self-indulgence. This is not news to anyone but academic Philosophers, so I suppose this essay should be directed at them. I will try to make it easy for academics to understand, but I can't bring myself to use words like "relata" or "diachronic" or "heteropathic", nor have I any stomach for "proof by reference" to the published thoughts of established scholars whose judgement in such matters is beyond question. I am an unapologetic Philistine, so you will just have to evaluate my remarks on their own merit.

A vast academic literature is devoted to the following questions:

1. Can the whole ever actually be greater than the sum of its parts? (This is technically known as the question of "Strong Emergence".)
2. Does "Free Will" actually exist, or is it an illusion?"
3. Is "Magical Thinking" to be encouraged or condemned?

My answers to these questions are, respectively,

1. It depends.
2. Who cares?
3. Yes.

So that's done, but I expect no one to be satisfied with my short answers, so I'll elaborate:

1 Strong Emergence

As far as I can tell, most of the literature on this subject consists of bickering about the terminology. That is not surprising for a word like Emergence, which is by design meant to be vague and ambiguous enough to inspire poetry and a sense of Magic (another term of the same sort).

Even for the most literal Reductionist, there are moments when a complex system of simple parts exhibits behaviour that inspires wonder — behaviour that *seems* completely unexpected, completely unlike the behaviour of any of the parts, and completely unpredictable from a comprehensive knowledge of same.

Many argue that with sufficient understanding, sufficient detailed knowledge and sufficient intelligence, one *could* predict the behaviour that seems "emergent".

This is actually *incorrect* for many macroscopic manifestations of quantum mechanical phenomena, but it's not trivial to predict *which ones*. So we are left without a conclusion independent of the details of the specific case.

2 Free Will

Suppose I could prove to you beyond a shadow of doubt that there is no such thing as “free will” — every time you *think* you are making a choice, that choice is actually being made for you by ordinary physical processes in your brain.

What would you do differently as a result of that knowledge?

Would you decide to stop pretending to make choices? *That’s a choice.* Would you just relax and let things happen to you? *That’s a choice too.*

The inescapable fact is that it *seems* like you have free will, and you will always continue to *act* like you have free will, so what is the point in debating this issue at all? Really! What an inexcusable waste of time.

3 Magical Thinking

Science fiction godfather Arthur C. Clarke composed his Third Law: “*Any sufficiently advanced technology is indistinguishable from magic.*”

Today this rule applies to countless examples that anyone can purchase easily (if they can afford them): computers, smart phones, DVD players, even automobiles. Yes, there are people who *do* understand many aspects of these tools, but most of us do not; and those who do, do not understand *all* of their features.

When you take your car to the garage, the first thing the expert mechanic does is to hook his computer up to the car’s computer and get a readout of what the car “thinks” is wrong with it.

The programmer who writes apps for

your phone is very unlikely to understand how the cell system manages to establish and maintain connections with thousands of phones simultaneously.

The website designer is unlikely to know how the Internet works in any detail.

The most expert hacker and computer engineer has no idea what individual operations the computer is actually executing at any moment.

You may try to deny it, but you, personally, treat almost every technology upon which your lifestyle depends as “magic” in the sense of “stuff that just works somehow”.

There is another kind of “magic” over which even exhaustive understanding has no discernable influence: knowledge of Rayleigh scattering and meteorology and the details of how much particulate matter is in the Western sky as the sun descends toward the horizon cannot spoil the “magic” evoked by a gorgeous sunset.

A comprehensive knowledge of jesso, pigments, binders, brushes, canvases and the artist’s account of what she was trying to express and why — these have little effect on the “magic” of a great painting.

So why is the accusation of “Magical Thinking” considered an insult when applied to science?

Well, in the Dark Ages the alchemists attributed various phenomena to “magic” that we now understand to be due to physics or chemistry or germs or endocrine imbalance. Insofar as we interpret “magic” to mean “stuff we don’t understand yet”, as science explains stuff, it loses its “magic”; and this loss is hardly lamentable.

Meanwhile, however, science reveals new phenomena like “dark matter”, “dark en-

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ergy”, proteins affecting gene expression, epigenetics, placebo and nocebo effects, ... — even (perhaps *especially*) as these phenomena begin to be understood, they seem “magical” to anyone capable of experiencing wonder. Indeed, it is arguably this sense of “magic” that lures scientists into a lifetime of trying to explain the phenomena.

Does this mean that the purpose of science is to destroy magic? Hardly. There is always more where that came from.