
From: Joscha Bach <[REDACTED]>
Sent: Sunday, December 11, 2016 10:58 PM
To: Jeffrey Epstein; Martin A. Nowak
Subject: "Something big" vs "The end of science"

Newton, Kant, Darwin etc. built new, essentially complete systems, through which it became possible to understand a large part of the world. Perhaps the last one that was completely pervasive was positivism, in the early 20th century, together with a functionalist lens. The century started out with the expectation of a systemic evolution, which would especially manifest in physics. Since then, new systemic approaches have been found, especially computation and cybernetics. But physics fizzled: Einstein's and Maxwell's universes could not be unified. Goedel ruined the party in mathematics. Cybernetics got lost in complexity theory. Minsky's AI and Chomsky's linguistics seemed to have failed. And at the same time, the systemic approaches to society and governance failed. Kissinger killed the Chilean experiment of building a cybernetic economy before it even started, the planned economies of East went bankrupt, and the market economies of the West stumbled from crisis to crisis. The systemic ideologies of communism, market liberalism and eurosocialism collapsed.

Our fashionable postmodernist ersatz intellectuals, like Jarvis and Morgan, tell us what most people want to hear: that systems are over. And nobody seems to say otherwise. Joi writes books in which he replaces systemic thinking with slogans: antifragility, whiplash, resilience, mindfulness, fluidity. Glorified versions of "muddling through".

Personally, I disagree. The new systems are there, but our public intellectuals can no longer see them, because they lack the formal training to do so, and our scientists can no longer see them, because they tend to be too specialized to zoom out far enough. In my view, the main insight that drives the new kind of systemic thinking is the break with the mathematical tradition in the sciences. The book of nature is not written in mathematics, but in computation, i.e. an a much more restricted script. When we apply this constraint, we get a new and more productive perspective on physics, causal structure, living organisms, complex systems.

A big part of the new systems are accidental discoveries of AI. That information is the basic building block of our universe (energy, space and matter are derived notions), learning and modeling are about discovering the eigenvectors and operators in feature manifolds, that learning needs gradients pointing into the right direction, that causality is conditional state transition, that Bayesianism is the general epistemological principle.

Our public intellectuals are currently debating whether algorithms are too racist. They cannot muster enough attention to see that, due to the way in which minds model any domain, everything is an algorithm, including and especially evolution, i.e. the algorithm that has produced us.

If we accept that the universe and everything in it is fundamentally computational, i.e. can be characterized by the regularities in changes in patterns of information, we get a unified frame of reference that goes beyond the reach of every previous theory in history. This can allow us to build an API for integrating all fields of knowledge and control.

I suspect Barnaby can see much of that. Perhaps someone should slip him some coke to ruin his modesty, so he starts believing in his destiny for greatness instead of quiet gardening :)<?xml version="1.0" encoding="UTF-8"?> <!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">

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