

INTELLIGENCE: LOGICAL OR BIOLOGICAL?

A personal view¹ of the unintelligent artifice that is Artificial Intelligence

Originally published in *Communications of the A.C.M.*, **36**, No.7, July 1993, 15-16 & 119. Still as relevant today as over a decade ago! This material has been recycled in an attack on knowledge management set out in the next article ‘The Knowledge Scam.’

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Oh! how I just hanker after those long lost days before gullible governments and organizations were assaulted by an unremitting onslaught from the proselytes of artificial intelligence. How I remember those sunny days when the acronym AI stood for artificial insemination. I say, I say, I say; do you know the difference between artificial insemination and artificial intelligence? There isn’t one. Some poor dumb animal is getting ‘screwed,’ and only the tool-waving professionals are enjoying it!

Why is it that this low humour doesn’t help? Why is it that I cannot even think about artificial intelligence, expert systems, neural networks, cognitive science and the like, without feeling extremely irritated? – irrationally irritated. Is this nervous response of sarcastic humour merely covering up my own inadequacy, my fear of the coming intelligent machine that “will keep us as pets”²? Marxism is dead – with automation, capital has overcome labour; is intellect next for machine domination? I had hoped that AI was dead too; even the United States Government has finally ‘wised up’ and stopped throwing money at expert systems³. But AI is no ‘straw man’; it won’t go away that easily. For they are still out there, those hard core of fanatics who insist that intelligence can be discerned through the application of logic and mathematical models, those ‘would-be gravy-trainers’ who absolve past failures with ‘we haven’t got the models right yet.’ Do those AI people really think they can capture meaning with a logico-mathematical analysis that merely manipulates inert tree structures and networks? It seems they do!

So, my indignation is not inadequacy. My annoyance is with the arrogant stupidity of these pseudo-scientists who persist in spreading the malignant lie, that intelligence can be disembodied and then automated⁴. My aggravation is with those who believe this present age will have all the answers⁵. My exasperation is with the ignorant who take it upon themselves to pontificate on

¹ I intend that this polemical essay be read aloud. I am using the rhetorical device of “talking to myself” here, because rhetoric is far more appropriate than logic for the ideas expressed.

² Edward Fredkin, ‘Horizon,’ BBC Television, 1983.

³ Artificial Intelligence, *Daedalus, Proceedings of the American Academy of Arts and Sciences*, Vol.117, No.1, Winter 1988.

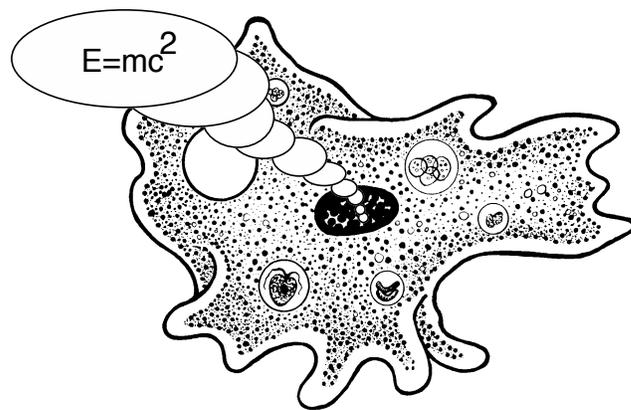
⁴ Every age has its myths of intelligent life through technology: Adam and Eve, Coppelia, Frankenstein: mud technology, clockwork and electricity respectively.

⁵ It is for this reason that this essay uses no modern arguments. The most modern ideas here date from the last century, and some go back to Plato (c.428-347 B.C.) and earlier. Even the style of presentation is the Ancient Greek form of reading aloud.

rationality, knowledge, intelligence – wisdom even. My irritation is with those who do not realise that the closer we look at knowledge, intelligence or wisdom, the less we understand them. These words, any words, are where confusion begins. *“As if every word were not a pocket into which now this, now that, now several things at once have been put!”*⁶ Even Humpty Dumpty⁷ knew that a word “means just what I choose it to mean – neither more nor less.” *“Every word is prejudice.”*

Ah! So my annoyance isn't with AI after all, it is with AI people and with their faith in abstract data structures. Why can't these people see that our human intelligence, our knowledge, our reason, our rationality, is interpretation of 'reality' according to a coarse systematization that we cannot escape. It is what we do, how we think, how we cope – it is essentially us. It is a systematization of sense data and biochemical input, that is our inheritance from distant ancestors, even from those amoebae in the primaevial slime. It is a systematization that prejudices us in the belief that our sensations show us the truth about things, about reality. Those amoebae developed reactive interpretations of their environment, enabling them to survive and prosper. Humanity also. At each stage in the feedback of our development, and this includes the present, a logic was formed that was sufficient for the effective interpretation of sense data. *“Not to know but to schematize - to impose upon chaos as much regularity and form as our practical needs require.”*

“Just as certain human organs recall the stage of evolution of the fish, so there must also be in our brain grooves and convolutions that correspond to that cast of mind: but these grooves and convolutions are no longer the riverbed along which the stream of our sensibility runs.”



Did those amoebae know the truth about things? Of course not! Was there some magic moment when, on the tree of evolution, our progenitors (and why pre-humanity alone?) were given the keys to the kingdom of knowledge? Has intelligence been perfected into some 'state of grace'? Or rather, are we trapped; forced to build on a framework set down before the dawn of

⁶ All the italicized quotations in this essay are taken from translations by W. Kaufmann and by R.J. Hollingdale of the works of Friedrich Nietzsche (1844-1900).

⁷ *Through the Looking Glass* by Lewis Carroll

intelligence? Have we merely developed upon the amoebae's-eye view of the world, and cultivated a more sophisticated schema? Our progress(?) to understanding(?) is entangled in an evolutionary spiral, genetically restricted and limited by *"the curriculum of an earlier mankind."* What if⁸ our means of thought was never its original function? What if intelligence is mere epiphenomenon, mere side-effect of survival? What if *"logic was intended as facilitation; as a means of expression and not as truth; only later did it acquire the effect of truth"*? What if *"our intellect is a consequence of the conditions of existence,"* a culmination of feedback in this species' successful (to date) quest for survival? Then human intelligence is tied to life; then it is biological, genealogical rather than logical. Then human intelligence cannot be separated from what is the human total. Then synthetic intelligence, mere mimicry of changing patterns of neurons (themselves a fantasy of the side-effect), cannot be intelligence, because there is no biological 'side' to be 'effect'ed.

But worse, what if *"error is a condition of observation in general."* What if we possess merely *"a convincing criterion of reality in order to misunderstand reality in a shrewd and advantageous manner."* What if the concept of comparison that pervades all our thinking, *"the presupposition that there are identical things, that the same thing is identical at different points of time,"* the idea of 'sameness,' the seed of equality and enumeration, and thus of logic, was merely appropriate in our evolution? Then the logic of mathematics is just idiosyncrasy. What if it has become mere self-indulgent over-sophistication? What if it is no longer appropriate? Was it ever universally appropriate? Then artificial intelligence is just error compounded on error.

What happens if, instead, we admit to being in the trap of evolution? What if we call ourselves human, and accept 'sameness,' and hence 'number,' as a practical choice with circumscribed appropriateness, while at the same time denying its validity? This is only a problem to those who insist on the logic of 'false opposites,' grounded in sameness. This is only a problem to those who fail to see that logic contrives to make simple, to make consistent, that which is not. The scientist's humble pride of 'standing on the shoulders of giants' merely perpetuates past-advantageous fallacies of logic and numbers. It is only the dominance of the authority of logic in our education system (our conditioning), that makes it unassailable, not logic itself.

But just because formal mathematical logic is illogical, doesn't mean that it can't be useful. After all, its domination over our thinking is based on the authority of past usefulness. *"What convinces is not necessarily true, it is merely convincing."* So just what do we humans do? We describe things, and we describe them well; we describe them in a way that is useful. We designate. We create descriptions that stand the tests of time, empirical tests. But those descriptions don't need to be true to be useful. Do they even need to be convincing? For what convinced us there and then, need not convince us here and now. What remains for us to decide is whether, as individuals, we find it necessary to convince ourselves of the validity of logic merely in order to apply it appropriately. After all according to this thinking, logic came into

⁸ I cannot resist using 'what if scenarios' to argue against the expert systems proselytes who propound 'what if scenarios.'

being because it was useful, not because it was true. Oh no! Does this mean that some of the products of artificial intelligence may be useful after all. It seems so – but despite the theory and not because of it. For AI remains mere unintelligent artifice!

But can the products of this logical intelligence actually control what is ‘out there,’ if there is an ‘out there’? Can an amoeba control? It is sobering to consider that we share a common ancestry of interpretation with that single cell! That human evolution has spawned logic, mathematics and technology from this base, does not mean that we can control the “*flux of becoming*” within reality, any more than the amoebae can. Perhaps what is ‘out there’ is far more wonderful than our drab shadow world of perception can ever appreciate. What if it is a flux more complex than can be perceived through the naive inventions of our presently evolved state?

Critics of this attitude would say that it is paradoxical, because it must ultimately describe itself within a schema that itself admits to being a false logic. The underlying concepts of evolution and feedback are therefore themselves products of a self-confessed misinterpretation, negating any ‘logical validity’ in the conclusions it may draw. But does that matter? For at the same time this approach implies that ‘true’ and ‘false’ are themselves merely artificial concepts born in a successful feedback, themselves sometime-appropriate misinterpretations.

Inevitably these self-indulgent mind games are futile, “*how should a tool (our intellect) be able to criticize itself when it has only itself for the critique,*” “*how can we look around our own corner?*” Such arguments must ultimately undermine themselves, and every other theory for that matter. Absurd! Or is it? Darwin’s contemporaries were only too aware that his evolution theories held this nihilistic message. They knew that the real argument was far more profound than the side-show of our descent from the apes. They knew that evolution held a *reductio ad absurdum* rejection of any formal understanding of intelligence. Why has our own age forgotten this? Perhaps it is appropriate that we choose not to know that there is no knowing about knowing?

We must just get on with it; decide to play a different game. Why should we play by the rules of the logicians? Why shouldn’t we play with our own individual self-decided designations of appropriate and inappropriate? Accepting complexities and ambiguities in the unknown and unknowable is what we ‘humans’ do all the time. Ambiguity is only a problem when we think about it within the cage of logic; only then does ambiguity make us rigid and we cease to function. But ambiguity is part of life⁹. People who need certainties, do so because they have no joy in life.

Ours is an island of reason, of rationality, of logic, created in a sea of unreason. In the madness of our technological age, Canute-like, the futile kings of Artificial Intelligence sit on the beach ordering the tide back. They and their followers fail to see that there is no knowing these alien waters, and that there is no escape. This is an island of our own construction, an island ‘built of

⁹ The joke at the very beginning of this essay depends on ambiguity, the double meanings of the words ‘screw’ and ‘tool,’ and the coupling (sic) of ‘gullible governments and organizations’ with ‘dumb animals.’

sand.’ *“Only very naive people are capable of believing that the nature of man could be transformed into a purely logical one.” “The world is logical because we made it logical.”* We made it logical in the eons of feedback that is life on earth. The *“ideological thuggery”* of logic forces us either to ignore the illogical, or to treat it as a logic yet to be perceived.

But we humans know better, we can transcend logic - only the drab obey logic without question. Why am I irritated by Artificial Intelligence people? You know, I don’t feel that way any longer. Writing this essay has got it out of my system. Catharsis! I can happily leave Artificial Intelligence to bathe in the sea of its own futility and ... utility!

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