

Newcastle SitP

8th Nov 2017

Ian Glendinning

Free Will

Too mysterious for science?

- A little intro to me and my *thought journey*
- “Noddy” Problem of *Consciousness & Free Will*
- Dan Dennett and his latest evolutionary thinking
- Highlights of “From Bacteria to Bach and Back”
- Beyond Dennett & beyond evolutionary biology.

Me – Getting to Here from Then.

Early Life - Science “Geek” at school Maths / Phys / Chem / Bio

- eg Carl Sagan (Cosmos) / Jacob Bronowski (Ascent of Man) influential
- Atheist & Secularist all my 61-year life. Humanist since 1981.

“Day Job” - Engineer & Technologist / Aerospace & Energy since 1977

- Obviously physical science based, but
“*ingenuity*” also about managing to get things done with people.
- Lived and worked in Australia, USA & Norway & well-travelled, Russia, China, South-East Asia, Middle-East, South America.

Ongoing “Life’s Work” – Knowledge Research Project

- Data / Information / Knowledge / Systems, Decisions & Cybernetics - Modelling in the day job >>> deeper questions???
- Epistemology

Me – Here & Now

Member / Supporter - *humanism, secularism & rationalism organisations*

[BHA/HUK](#) / [NSS](#) / [Conway Hall Ethical Society](#) / [SitP](#) / [SAS](#) / [AFE](#) etc. – and active in local groups.

Trustee Board Member of [Rationalist Association](#) publishing [New Humanist](#)

Plus Amateur Academic Research ...

[Reading, writing and events](#). Not just Science & Technology but also “born again” humanities in general, literature, history, politics and **philosophy** more generally,

- *Metaphysics / Ontology / Epistemology / Ethics & Quality / P of Mind / P of Science*

Sceptical Position - For “Science **and** Rationality”

But against “**Scientism**”. The narrow dogma – or *accidental arrogance*? - that science and objective logic is **the** privileged answer to anything and everything that matters (after [Wittgenstein, Gödel](#), etc. a “*Humanity of the Gaps*”)

- Blogging as “Psybertron” [since 9/11](#) 2001. www.psybertron.org
“*What, why and how do we know?*”
- And as [@psybertron](#) on Twitter (and other social media)
“*Equal-opportunity infidel. Keeping science and humanism honest*”

The man on the Clapham omnibus?



- We naturally think of our consciousness & will as real. **Our mind and its workings are the thing we experience most directly?** (Though *obviously* we do so *subjectively & psychologically*. a la Descartes in fact – *cogito ergo sum*, etc.)
- We *reject* the idea that we are “pre-programmed” and we reject the idea that the world is “pre-determined” – independent of our own decisions and actions (*obviously limited by the physical causation and chance of power and influence*)?
- Without such free-will we’d think of ourselves as “mindless zombies”. We’d be *disappointed* **if we believed our conscious mind and our will didn’t affect the real world** and that our impression was *just* an illusion evolved to help us rationalise & feel psychologically better about our actual powerlessness?

The “Noddy” argument.

- The Hard Problem:
 - The “subjective experience” of our mind (*qualia*) are pretty much impossible to explain “objectively” in terms of physical states of our brains and sense data.
 - The so-called *Hard Problem* philosophically, Impossible almost *by definition* scientifically.
- “*Free-will is dead. Let’s bury it.*” (random scientist)
 - Everything in **science depends** on the physical understanding that all causation arises from laws involving fundamental forces between the standard model particles and the statistical predictability of quantum mechanics.
 - (The statistical probability of) every future state is **determined** by previous states and these **laws & constants**.
 - (*Even if something more fundamental underlies these, eg strings, supersymmetry, quantum loop gravity, integrated-information, etc.*)
- This leaves no “gap” for our subjective input *not* being pre-determined. Our consciousness and impression of subjective will must be an illusion with no actual effect on the world.

The Libet Experiment

- [Benjamin Libet](#) (1970's and repeated many times in many variations since – famously [with a live Sceptic Conference audience by Susan Blackmore](#) of *Meme Machine* fame?)
 - The “**brain**” physically responds and reacts to a stimulus 350-500ms **before** any conscious “**mind**” report of awareness and any evident decision to act.
 - Seems conclusive? – that the actions of the conscious mind are epiphenomena, post-rationalisations, **after the event**. The “noddy” view from science must be right?
- Better conclusions from Libet?
 - Conscious will is many layered - from the physical sensors and hard-wired responses to the increasingly-conscious and complex, higher, supervisory levels.
- Think of the way our conscious mind acts as an evolved & learned capability. Think of free-will rather as **free-won't**? ([Daniel Wegner](#) 2002)
Think of a top-class tennis player returning a serve?
 - **Most** of the action is pre-wired (genetic capabilities, developed skills, learned tactics, experience and anticipation).
 - The time after the ball leaves the opponent's racquet is used **only** to fine-tune or abort.
 - We're not going to waste resources on laborious ballistics calculations and unnecessary time-consuming steps when **we've evolved a better solution to the problem**.

Sam Harris?

- Sam Harris – [Free Will \(2012, my own 2014 notes\)](#):
 - Does he really only say “Free will is an illusion?” or “Free-will doesn’t really exist?” **No he doesn’t.**
 - He says “Free will is **actually more than** an illusion. That we are the conscious source of **most of** our thoughts and actions ... is false.”
- Sam Harris (Horseman#4) vs Dan Dennett (Horseman#3)
 - Dennett – [Critique of Harris “Free Will”](#) (Jan 2014)
 - Harris – [Letter in response to Dennett](#) (Feb 2014)
Decidedly acrimonious and public spat between friends with a common enemy, but real & deep disagreement on Free Will.
(*Stoked by Jerry Coyne and more.*)
 - Harris & Dennett – [Podcast– Free Will Revisited](#) (Jul 2016) Return to friendly and respectful dialogue, but still a good representation of [*most of*] their actual differences.
- Sam Harris in 2017? More recent “waking-up” podcasts involving “dialogue” (and psychedelics!)
 - Harris position is evolving.

Selected Dan Dennett Bibliography

[Born 1942. 1963 Harvard BA / Quine; 1965 Oxford D-Phil / Ryle,
He's a philosopher long acquainted with Oxford genetic-biologists;
Now - Professor of Philosophy at Tufts University, Centre for Cognitive Studies.]

- [1979 (Doug Hofstadter) "Gödel, Esher, **Bach**"]
- 1981 – "Minds I" (*with* Doug Hofstadter)
- 1991 – "Consciousness *Explained*" (*Not!*)
- [1995 – (Doug Hofstadter) "Fluid Concepts and Creative Analogies" (Geek alert!)]
- 1995 – "*Darwin's Dangerous Idea*"
- 1996 – "Kinds of Minds – *Towards* an Understanding of Consciousness"
- 2003 – "*Freedom Evolves*"
- 2005 – "Sweet Dreams: Philosophical Obstacles to a *Science* of Consciousness"
- 2013 – "Intuition Pumps and other *Tools* for Thinking"
 "*Just as you can't do much carpentry with your bare hands, you can't do much thinking with your bare brain.*" Mind is more than Brain.
- **2017 – "From Bacteria to **Bach** and Back – The Evolution of Minds"**

Dan Dennett



- Patient with his critics!
- Critics (say) “You’ve still work to do *prove* your ideas to the satisfaction of the rest of us scientists and philosophers”
- Dan (say) “Well, you’ve not proven me wrong, and I’ve addressed your criticisms”
- Criticism as a contact sport. *(There are even whole books of collections of arguments and dialogue between him and his critics.)*
- “For the past 200 years philosophy has been done like warfare, aiming to defeat opponent. But you can defeat someone without being right.”
Lewis Gordon / APA2017
- Progress depends on suspending disbelief and holding-back on gain-saying criticism.

Bacteria to Bach and Back (B2B&B)

- His *argument* has no simple beginning and end. Start wherever you are and be prepared to go round as many times as it takes.
- In practice he presents the whole evolutionary history of the emergence of life and consciousness. He makes extensive use of his *Evolutionary Design Space* visualisation for evolution of many examples of Darwinian / Lamarkian “things” with many variables (3 Variables at a time) *See next few slides*.
- **Our Subjective Consciousness is *who and what we are*.**
We are a need-to-know *user interface*. (“kinda” an illusion)
The objective denial of subjective reality can only be broken if we accept our subjective selves within science.
- He does provide *some* references, where *particularly* relevant, he even makes *some* asides and detours to address predictable *critical* counter-arguments at a few key points, BUT if we argue only on our opponents terms, we’ve already lost So
- **“Life’s Too Short”** he (actually) says – see first point – and repeat.
“Dennett’s Bet” is that our understanding of conscious will, and our **scientific arguments** about it, will evolve.

Life, The Universe *and Everything*?

- Darwin's Dangerous Idea in B2B&B

- All the way from Physics to “Intelligent Life”
Evolution itself is *algorithmic* with very few simple basics.
 - Population > Vary (a *few* offspring) > Select (*from* population) > Repeat
- The point being new branches (species) of the population emerge, new populations with their own cycles – ad infinitum.
- “Strange Loopy” – looks circular, but not only new things emerge, *new unpredictable species of thing* emerge on new levels.
 - Physical things > New physical things > Chemical things
 - Chemical things > New chemical things > Biological things
 - Biological things > New biological things > Sentient things
 - Sentient things > ... Consciousness, thoughts, concepts, memes, tools, culture, Bach, the Sagrada Familia, ... you name it.
- Still Darwinian (algorithmic) but with ***additional intelligent inputs*** and intelligent control of the processes.

Evolutionary Design Space Example

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FROM BACTERIA TO BACH AND BACK

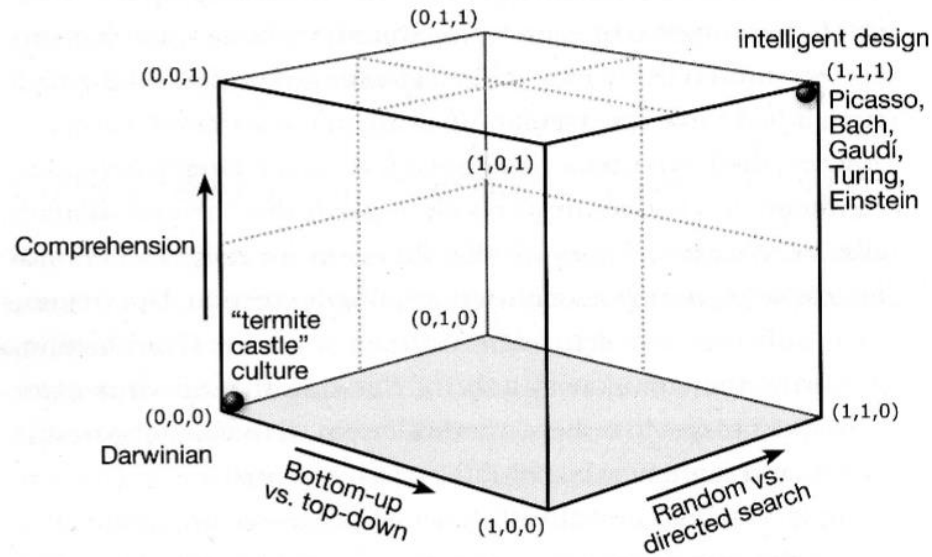


FIGURE 7.5: Inverted Darwinian space with Darwinian phenomena at (0,0,0) and intelligent design at (1,1,1).



Other highlights in Dennett / B2B&B

- Reclaiming: The idea of “**intelligent design**” for things designed by *naturally evolved* intelligence.
(*Not supernatural ID / Creationism*)
- Reclaiming: Why? as in “**What for?**”
(Not just Why? as in How?)
Teleology - the idea that things can exhibit purposefulness, towards purposes and ends that themselves evolve naturally.
(*No supernatural “end” towards which all is directed, or any director doing the directing.*)
- Reinforcing: Genes > Epigenetics > Memes > Designs?
(It’s all about **information complexity**)
- Warning: “**Too-greedy**” **objective reductionism** back to known (and presumed well-defined) physical objects too quickly – missing out on significance of emergent layers of complexity. Holding off on fixing definitions too soon.

But not just Dennett

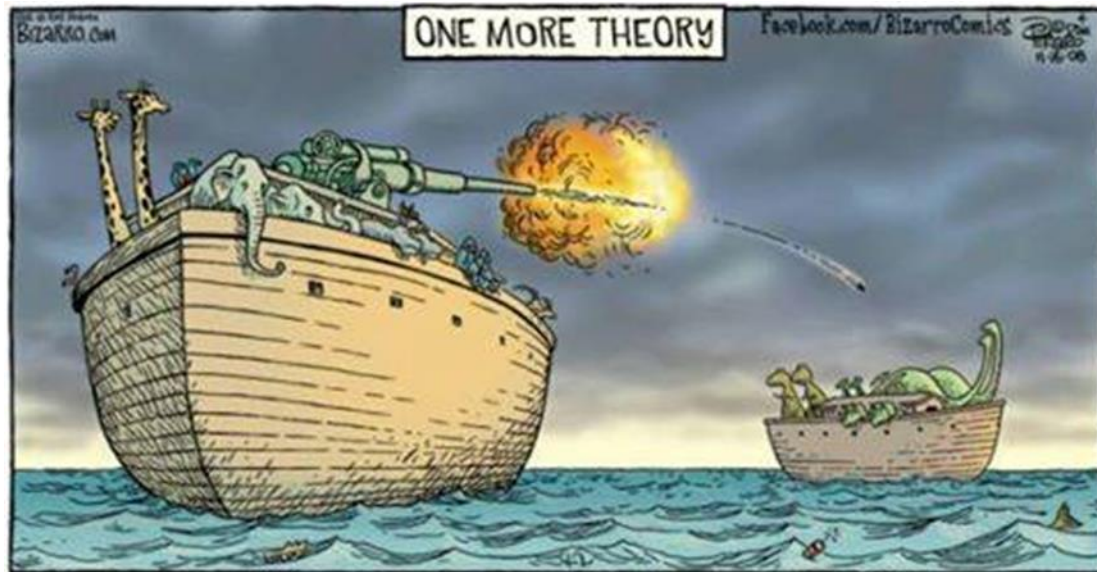
- Not “**just**” anything. (Chemistry isn’t just Physics, Culture isn’t just Biology)
Consciousness isn’t “just” an illusion – “Sorta” / “Kinda” (*but* there’s more)
- Julian Baggini - *Freedom Regained* (quoting Harris) “we are not the authors or our thoughts and actions **in the way that people generally suppose.**”
 - And in *Short History of Truth* – different species of truth, different species of argument.
- Kevin Laland – *co-evolution* of conscious intelligence & culture in humans (pointedly avoiding use of the word meme!)
- Anil Seth – [consciousness as “controlled” illusion](#) – ie *real* even though not as it might appear.
- Max Tegmark - “[food rearranged](#)” Consciousness as emergent property (independent of underlying layers) - Understanding human intelligence as part of potential AI projects. Layers of complexity in patterns of information. The *arrangements and history* not just the component parts & states (IIT)
- Evolution – Darwinism > Modern Synthesis > EES
- [Ergodicity](#) – History / Bayes / Risk / Consequences – N N Taleb anyone?
- Physics – “spooky” relationship to consciousness – thin-end of much “bollox” - *but* common underlying dependence on information patterns maybe?
Carlo Rovelli on QLG. Unger & Smolin on “meta-laws” and more.

Conscious Will is as Real as *You* Are

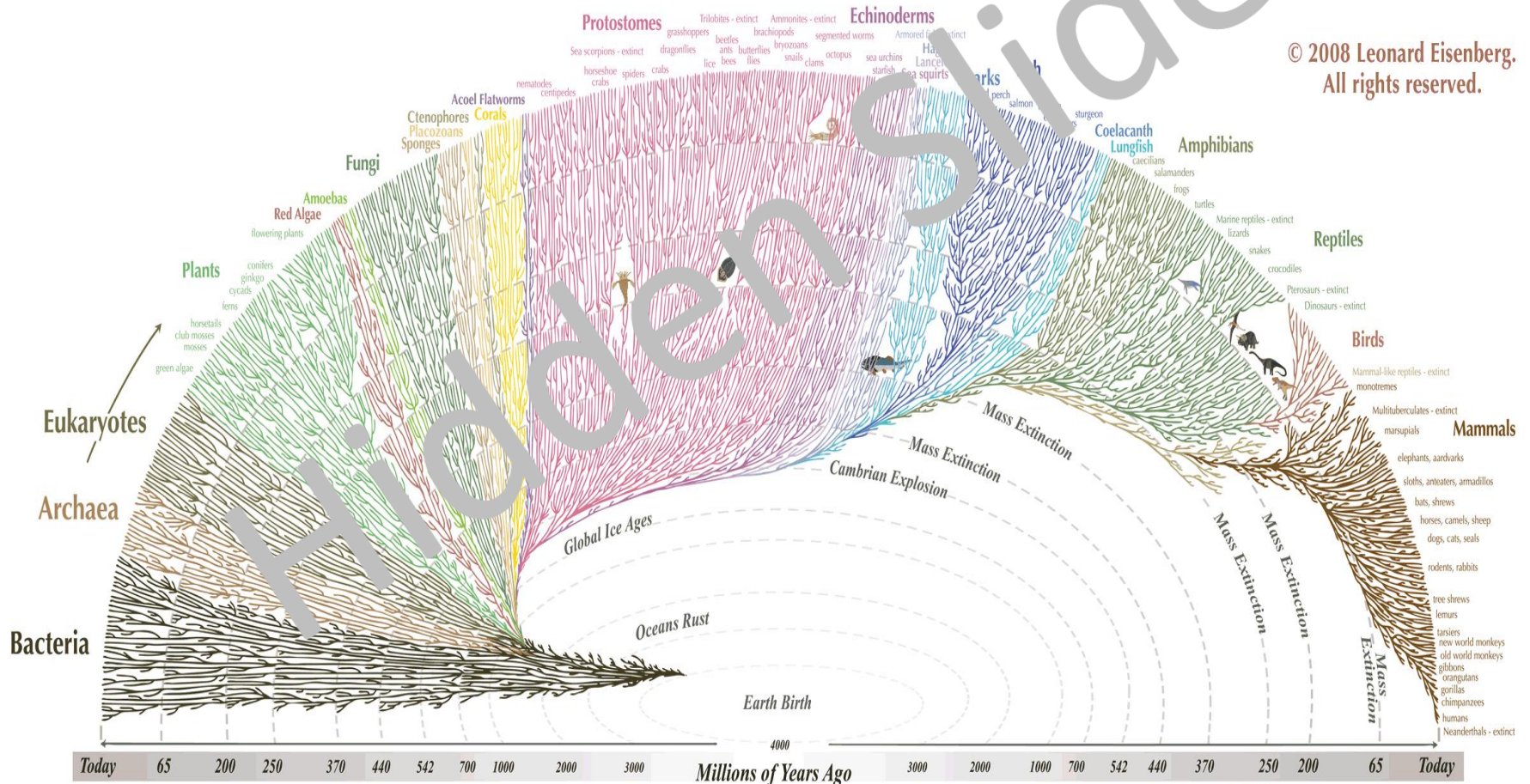
- Mainstream science conclusion is often that our free-will *cannot exist*. It *must be* some kind of illusion or *epiphenomenon*.
 - To reject that argument one is accused of being a wishful **denial** of accepted science.
 - If Standard Model(s) = True, Then Free-Will = False.
 - Nothing wrong with Logic, but there's more. Physical Science must continue to evolve.
- The **denial** of the existence of free-will is itself a “kinda” scientific dogma or arrogance. Agreeing that it's simply **not yet very well explained by current science** is much more honest.
- “Compatibilism” – after **Dennett** - Sure, physical laws are deterministic, but the networks & layers of causation in mind, consciousness and free-will are evidently complex and imperfectly (contingently) understood.
 - Don't be **too quick** to define the objects you are dealing with. Don't be **too greedy** in reducing the problem to linear, deterministic causation in terms of those objects.
 - The **best** explanation for our subjective experience of conscious will *may not be* one reduced solely to terms of the lowest physical objects *as we currently understand them*.
 - **Proving the other guy wrong according to my theory? Closing ranks in arguments with “opponents”? Use Rappaport or the principle of charity.**
There's a crack in everything - It's how the light gets in.
 - **SUSPEND DISBELIEF.** We really do have just the right amount of free-will we can use. Dennett's bet is that if we let it, our understanding of it will evolve, as will our understanding of rational arguments.

Q&A ?

Discussion as dialogue better?



Eisenberg's "Tree of Life"



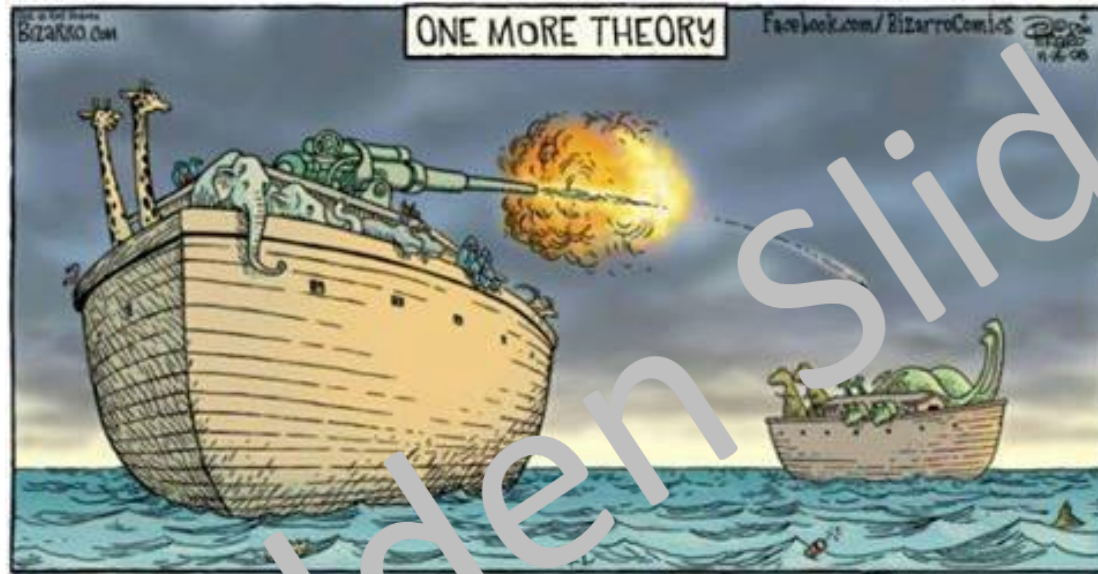
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All the major and many of the minor living branches of life are shown on this diagram, but only a few of those that have gone extinct are shown. Example: Dinosaurs - extinct



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evogeneao.com

“We” (our consciousness, our subjective experience and our will)
- are our evolved user interface to our physical / biological beings.



The problem with science explaining that lies with science's dogmatic over-reliance on objective, reductionist, determinist, materialism, *not* with the evolutionary explanation of how consciousness came to be as it is.

Explain that to me again?

There is no one-time explanation-on-a-plate for consciousness:

We must go round the *evolutionary loop* multiple times.

Science itself (*tools*) will evolve with our *understanding* (not just *knowledge*).

- <http://theoatmeal.com/comics/believe> on Prejudiced Thinking Resisting Argument.
- <https://www.youtube.com/watch?v=N0vO5zc73qk> John Lloyd on “What Matters”
- The Bach connection?
- Materialism vs Culture & humanities?
Objectified **memes** / memeplexes / machine / systems views
It's the greedy objective reductionism that's the problem – with physics as well as humanities.
- Strange-loopy attractors / chaos?
- Rappaport / Registry Assembly Prog?
- Other pet topics (hidden) slide follows if needed for Q&A / Discussion.

Me & My Free Will – *My* Pet Topics

Evolution including Memetic Evolution of Knowledge & Belief.

Memes & [memetics](#). Echo-chambers and conspiracy theories. Understanding & Rationalisation of Belief, Faith & “Political” Dogma. Simple vs Simplistic; Binary arguments vs Subtle & complex considerations. Attention-grabbing / headline-reporting of scientific “discoveries”. Public scientist “rock-stars” on the one side, social-media-enabled advocates & critics on the other.

Decision-Making & Governance – literally “[Cybernetics](#)” (pre-1940’s, before AI etc.)

What information we have, how we interpret it as knowledge, and how we base decisions to act upon it? Systems view. From Individual choices to super-national government & policy.

Decidability: scientifically, even statistically, undecidable questions (Taleb).

Complexity in Layers.

Reality of iterative emergent properties & “strange loops” ([Hofstadter](#)). Late-binding definitions. Too-greedy reductionism ([Dennett](#)). Broad & narrow definitions. *Sorta* two-way causation. Objective Identity distinct from ourselves.

Philosophical (and Political) Problems at the Bleeding Edges of Science.

Cosmogony, big bang, multiverse(s), inflation, evolution of our universe. The appearance of design. Anthropic perspectives. Scientific dogma. Incompleteness of standard particle model(s). Physics as information. Reality of time & causation. Maths as part of the universe and its history. The evolution of laws and constants. ([Unger & Smolin](#), [Nagel](#), [Sheldrake](#))

God & Faith vs Science & Reason “Wars”. The Four Horsemen, Islamism, etc. (‘nuff said)

Brain-Mind, Consciousness, (Artificial & abnormal states of consciousness)

.... & Free-Will. (Next)

More Recently Topical

- [Unger \(Philosopher\) & Smolin \(Scientist\)](#)
 - [*The Singular Universe and the Reality of Time*](#) (2015) Chap-7
 - “A symptom of the metaphysical folly ... [where time and laws of causation are outside physics, is that] ... sense impressions are incompatible with [our model] *therefore* qualia cannot exist.
But ***the one thing we can be sure of is*** that qualia do exist.”
- [Baggini \(Philosopher\)](#)
 - [*Freedom Regained*](#) (2015)
 - Sam Harris, [seemingly] the most fervent denier of free-will, says:
“The fact that our choices ***depend on*** prior causes does not mean they don’t matter [or don’t exist]. Human choice ... is as important as *fanciers of free will* believe ... we are not the authors of our thoughts and actions ***in the way that*** people generally suppose.”

Additional Refs used in Q&A

- Carlo Rovelli ?
[Seven Brief Lessons](#) (*Layman's intro to modern physics.*)
[Reality is Not What it Seems](#) (*Deeper, but readable, on "information" physics more fundamental than existing standard models, AND on the "I" of consciousness.*)
- Ian McGilchrist ?
[The Master and Emissary](#) (*Rehabilitating left-right brain realities. Note also "Autism" link also.*)
[@DividedBrain](#) (*Film due for release, with John Cleese.*)
- Damasio, Sacks et al ?
[A summary of links](#)
(*"Abnormal" - atypical or altered - brain states.*)

Free Will - Too mysterious for science?

- As rational people we value science for its reliance on repeatable evidence of objective facts and on logical relations between these. When "arguing" with those we consider misguided conspiracy theorists and superstitious or supernatural religionists, this becomes our mantra and we bring all our ammunition on cognitive biases and logical fallacies in support of our argument, not to mention rhetoric and mockery! But this simplistic "us and them" stance is political and polarising and is unrepresentative of the real subtleties of knowledge of the natural world. So much so that much popular philosophy and public science debate flip-flops between dogmatic certainty and outright denial of complex "mysteries" and this holds back progress in some important areas.
- We will look at some the latest ideas on Free Will but will also notice that there are many others, some like free-will associated with the evolution of consciousness and intelligence, but others more fundamental to physical science itself.
- Ian is an atheist, humanist, rationalist, skeptic ... engineer. He is also an amateur philosopher of epistemology researching "What, why and how do we know?" since before blogging was invented.

Previous “*As Advertised*” Intro ...

- Materialist science has a hard time explaining consciousness and almost *by definition* cannot explain our subjective experience of it. And, even when it tries, it remains just as hard to account for how our subjective "will" can really affect the physical world.
- The problem is as old as philosophy itself, most famously exposed during the Enlightenment by Descartes's dualism and dubbed simply "The Hard Problem" in the late 20th century.
- So hard that many scientists and philosophers have concluded *in all seriousness* that Consciousness and Free Will must be illusions, that they *simply cannot be* real.
- **NB : SUSPEND DISBELIEF**