

Miscellaneum

The following is an assortment of writings I have produced, in no particular order.

The Origin of Reasoning

Causal interactions just happen very fundamentally in the universe, so deduction is important. Everything is coherent and relative fundamentally, hence the ability to think coherently and relative to some assumed basis. It's a neural network training by evolution to conform to the universe's own paradigm. Induction is the process by which a basis is determined. Deduction is causal, in a way. Deductive reasoning has a causal flow from its premises. All men are mortal, Socrates is a man, therefore Socrates is mortal. The conclusion follows due to the premises. The conclusion does not stand without its premises; it is caused by its premises. It is a truth which emerges only due to the truth of its basic assumptions.

Deductive reasoning is a tool which developed due to the universe around us being coherent, relative and causal. It's our brain's way of internalizing this. It is related deeply to coherence between and within the most fundamental interactions of the universe itself. If the universe had no coherence, no consistent causality, such reasoning would be useless. Nothing would follow from anything. Implication can be a form of causality. Since premises imply a conclusion, arguments have a causal relationship.

Both inductive and deductive reasoning emerge from this property of the universe being causal, relative, and coherent. It's just how the human brain has internalized these observed facts.

Truth

I've always hated stuff like public forum debate due to its over-reliance on sources. Sure, you have to start somewhere. But that "somewhere" is much more foundational than people realize. The baseline is science itself, to ascertain the smallest-scale truths about reality. As far as I can tell, the purest "truth" is nothing but the set of interactions between the most fundamental things, whatever those "things" may be. Logic, for one, doesn't really have a source, it has a derivation. It's like asking the source to $1+1=2$.

The Problem with Physics

I don't have an opinion on what theory is most correct.

The reason physics hasn't innovated over the past several decades is not because of a lack of talent. Take Ed Witten, for example. He's brilliant, not gonna lie. But physics is still at a standstill. Why? Not because GR and QFT can't be unified, but because no existing unification attempt (there are many, and they all work to some extent) can be verified experimentally without absolutely cosmic-scale detectors, so none will be accepted as true until we're advanced enough to build them (if that ever happens).

And we'll never be able to just guess at what dark matter is. Even if there was some model that explained it along the way to unifying GR and QFT, we'll never be able to confirm it experimentally until we're capable of accessing / traveling through the intergalactic medium.

It's not our physics that's holding us back, it's our technology. And it will be for eons, if humanity survives for that long.

Evil is Ignorance

Ultimately, acting against the good of others ends up being a matter of willful ignorance and self-sabotage rather than a matter of what position you take.

It turns out that you actually hold yourself back by acting counter to the good of all, since the good of all increases the quality of life for everyone over time as progress is made, much more so than any individual could achieve during their lifetimes. This is because the sum total of humanity is vastly more capable than any single person.

So evil / greed always comes down to lack of knowledge, understanding, and social perspective. Hence why *maximum perspective* equals no more evil / greed, and hence the idea behind the mind network.

Empathy

I have had struggles with things like empathy before, especially when I started distancing myself from my highly religious household. I began to see things like emotion as strictly illogical, based only on primitive and meaningless responses to external circumstances. I would

experience an almost instinctual repulsion towards it. It was only when I began realizing the practical effects of people misunderstanding me, and when I began naturally thinking in terms of physical systems due to the science books I was reading, that I started to understand the utility of it all, not just for society but for myself in it. I realized that these emotions and instincts evolved for a reason - because they are beneficial to our survival.

It is in my own self-interest to respect others and uplift them, bringing the collective standard of living much higher than any of us could have achieved on our own. If this perspective could be applied to everyone in the entirety of society, the progress we would make (and the abundance we would produce) would quickly and massively exceed everything we have ever done as a species.

In terms of actualizing that ideal reality of global systems understanding, I realized the best way to do it was to somehow produce a system that allowed us all to perfectly understand each other with full transparency and no room for deception, from the one-on-one all the way to the societal scale. A connection of many nodes and many layers - a network.

As an almost miracle of timing, this paradigm shift in my person thought happened to coincide with my first playthrough of Below Zero (it's not that surprising, really, since I had gotten both the game and a few physics books for the holidays, so the events aligned for this reason). This afforded me even more insight into the details of my own idea, as it was explored almost exactly with Al-An's dialogue. From that point on, I never stopped thinking about it and developing the details.

Politics

I care about ethical systems and ideals, but modern politics is a shallow pool of ideas formed largely out of ignorance. Greed is something I would consider an ignorant thing. Politics is just a tool leveraged by election campaigns, formed by misaligned governmental incentives.

If you want policies that are in phase with the utilitarian good, but don't want to scrap the baseline system, make policies that are most aligned with that system's function. It's that simple. There are no sides. "Sides" only exist to appeal to voters, because the government isn't incentivized to promote the utilitarian good. It's incentivized to keep its incumbents in office.

Ultimately though, if you want to get into the world of ethical systems and truths and ideals, the baseline system is itself so broken and convoluted such that it will never produce any satisfying result. You'd need to dismantle the entire social paradigm and begin again.

Peace

The first step to reduce hatred is to encourage acceptance. There are times when one group may completely refuse peace, but by and large, compassion and nonviolence are the ultimate tools for good. Once we get along, we can work and learn together to forge the best path forward.

My Motivation

Why do I try to be a good person? Why do I want to support others? If you must know, it's the way I operate. What do I gain? I gain the little increase in the function and quality of life of the world. Everyone gains it. Everything and everyone is interconnected. I freely extend this attitude to *everyone*. A dedication to the achievement of everyone's happiness and simultaneous best lives, running concurrently. Total openness. Total understanding. Nothing whatsoever withheld. Whether or not people squander this is their own decision.

I've deduced certain best principles based on life's smallest-scale, most fundamental tendencies. The ethics of life as a physical process - of human behavior, and human society. Being a good person is the key to making the world a functional place, if extended to the extreme of openness. As in, if everyone could understand everyone else as they truly are, communicating with absolute transparency, thought to thought - It would be the natural evolution of our world, one which has surpassed conflict, surpassed misunderstanding, and achieved the capacity for innovation and progress unlike anything ever conceived.

I use my life to offer a tiny bit of this to the world. An opportunity for kinship and peace, at least with one of the many. That one, of course, being myself.

Religion

Apparent "problems with religion" aren't inherent to the idea of religion itself, but rather they are problems with the **institution** of religion. When people realize they can use religion to control people, they will do so, and this has been done since the dawn of civilization.

Having personal faith you know can't be proven and don't subject others to is entirely unproblematic.

Meaning

Meaning is found in the process. Not so much the result. Differing ideas thus are a sign of what we are. Living things, working to understand and improve our condition.

As we go along, perhaps we will destroy ourselves. Or perhaps we will continue to improve and streamline the processes of life, improving continually. The indomitable human will. Maybe some will go one way, and some the other. Maybe some will find something in-between.

All we can do is try, for this is what we are.

Having deduced the trajectories of life's physical process, I will choose to go the way of improvement. It will require many of us to walk this path to succeed. I will have to share my ideas and research the technologies they prescribe, showing kindness to all along the way.

All I can do is try, for this is who I am.

Good and Evil

There's no such thing as good and evil, from what my experience. Just rationality, accidental oversight, and willful ignorance. Willful ignorance, if anything, would align best with the idea of evil.

Generalized Dot Product

$$\cdot(\vec{n}_i) = \sqrt{\left(\prod_i |\vec{n}_i|\right)^2 - (\det(\vec{n}_i))^2}$$

It is a measure of how boxy the vector set's associated parallelepiped is. The more square it is, the closer to zero the generalized dot product will be (more orthogonality). Its value will be zero for an orthogonal set, and it will be equal to the product of the vector magnitudes in a parallel set.

General Relativity

Light actually doesn't get pulled into massive objects (in fact, nothing does). It's not something that Newtonian physics can describe. It arises from a mathematical framework called "General Relativity." What happens can essentially be thought of as this: massive objects change the actual geometry of straight lines (geodesics) in their vicinity, which causes light to seem like it is being perhaps "attracted" to the massive object, when in reality, it's just moving in a straight line in the locally curved spatial geometry.

This may bring up the question of "why do stationary objects fall in towards massive objects, then?" since something that isn't already moving in a straight line shouldn't be affected by this curved spatial geometry. This is where time comes in, because - more than just in space - straight lines in spacetime are being curved. Since even a stationary object is always moving through time (and in fact, every object is always moving with some component of motion in time and some components of motion in space, such that the total among them (called the "spacetime interval") equals the speed of light - meaning nothing can travel faster than light, and also meaning time dilation happens for objects moving at high spatial speeds) this warped spacetime geometry curves the time motion of the stationary object partially into the spatial dimensions, causing it to physically accelerate towards the massive object at the source, just by moving in a straight line through curved spacetime.

Another interesting consequence of this is that, since the relative geometry of straight lines changes with different degrees of spacetime curvature, distances themselves can seem warped when nearby massive objects, especially particularly massive ones such as black holes. This is a phenomenon known as "length contraction," and it happens alongside time dilation whenever the time component of the spacetime interval gets curved into the spatial dimensions (meaning it also happens at high velocities relative to other objects).

Both of these phenomena (which, keep in mind, happen only relative to other objects) can be measured, and in fact have been successfully measured many times, confirming this picture of spacetime I've just described (and the theory of General Relativity itself). These relativistic effects happen to satellites in Earth's orbit in small but gradually accumulating ways, so we have to account for them when we do GPS tracking.

Entropy, Probability, and Quantum Mechanics

ENTROPY: A quantity which represents how similar the odds of available outcomes / microstates are. In other words, it represents how unpredictable/uncertain the particular outcome of a random sample (or, in thermodynamics, the system's state at the next moment in time) will be.

Ensemble: A probability distribution over phase space (phase space is the abstract space containing one axis for each particle's position and momentum, one of each for each spatial dimension - 3 numbers for position and 3 for momentum - totaling 6 axes of phase space **per particle**). Since this abstract, high-dimensional space contains all the information needed to specify all possible configurations, or **microstates**, of the system, and indeed every *point* in phase space corresponds to a unique system configuration, it describes every conceivable way the physical system could be organized. It is also commonly referred to as the physical system's state space, or configuration space - phase space is a more specific term, referring to the state space specified in terms of positions and momenta). In other words, the ensemble is the set of microstates, with each one weighted by how likely it is to be the system's next configuration. A totally uniform ensemble corresponds to maximum entropy, a delta function (point-like) ensemble corresponds to minimum entropy; any continuous, nonzero ensemble gradient corresponds to some intermediate entropy.

Maximum entropy: all microstates (positions in phase space) are equally likely. Since most microstates are random and look about the same macroscopically, all futures look about the same (homogeneous) forever.

NOTE: Curiously, since all microstates are equally likely, they all have zero probability. As a consequence, any particular state is a completely random sample, and these random samples happen continuously (with infinite temporal resolution). This is mathematically identical to the quantum equivalent, where the quantum state of the system is an equally weighted superposition across all possible eigenstates, since wavefunction collapse is precisely as random as the continuous random samples of the classical analogue (this condition is met at infinite temperature).

Minimum entropy: one possible microstate is statistically certain; indicative of nothing happening at any scale; all futures look the same (homogeneous) forever.

NOTE: Curiously, since only one microstate is possible, the quantum and classical systems are once again identical. The quantum state in Hilbert space is a pure Dirac delta eigenstate, and the classical ensemble is also represented as a Dirac delta probability distribution over phase space. They are both exact states which will not evolve with time (this condition is met at absolute zero temperature).

All this in mind, a constant, intermediate entropy is ideal for life - intermediate values allow for the variety of states required for living things to be dynamic, and constant entropy (as opposed to increasing entropy, the other alternative allowed by statistical law) allows life to maintain this variety of states and internal order without eventually dissipating into the environment.

NOTE: The mathematics between quantum and statistical mechanics is strikingly similar. The key (mathematical) innovation of quantum mechanics seems to have been to take the

probability distribution on phase space and split it into conjugate complex amplitudes over Hilbert space. From there - given the possibility for observables to noncommute - most of the formalism seems to fall into one's lap.

A CONNECTION WITH BAYESIAN PROBABILITY AND MACHINE LEARNING: Similarly to how entropy is the uncertainty inherent to a probability distribution, the cross-entropy is the uncertainty you get when using an arbitrary model to predict the outcome of some probabilistic event. It makes intuitive sense, then, that the cross-entropy is always greater than or equal to the entropy of the actual probability distribution, since no model will produce better predictive results than the underlying rule. The extra uncertainty brought about by this inefficiency of an arbitrary model is called the KL divergence - the difference between the cross-entropy and the actual entropy. It is, quite literally, a quantitative representation of how incorrect a given predictive model is relative to the actual underlying probability distribution. Also, note that this "incorrectness" only differs from the cross-entropy itself by the constant additive factor of the actual entropy; therefore, minimizing the cross-entropy itself, rather than the difference in accuracy between the given and actual model (KL divergence), will suffice as a strategy for improving the predictive model. This idea has obvious implications for the field of machine learning, where predictive models are trained to better match real-world data.

Molecular Biology and Computation

Much like a computer has bits, DNA has bases. Also, much like a computer has bytes, DNA has codons and genes. DNA, when transcribed and translated, yields proteins. These proteins act much like instructions in a computer, while also being physical objects which can be used for providing structure. DNA is much like disk space, RNA is like RAM, and the Ribosome is somewhat like a register.

In this way, a molecular biological system is much like a computer, though it can also directly interact with the physical world around it, making it much more versatile and much more powerful than a traditional computer, though it does not rely explicitly upon logic gates. It is rather a much more general informational system which relies on the incredibly rich potential of interactions between new proteins on the surrounding structures it has created.

Proteins are constructed from arbitrarily large combinations of 20 basic units called amino acids, which arrange themselves in 3-d space as is energetically favorable. This allows a much more robust instruction space than any CPU architecture, with the most common proteins being constructed of 300 amino acids. This creates a most commonly used instruction space of 20^{300} , though the limits of what can be utilized are much higher, providing a functionally infinite instruction space whose behaviors depend on and can also be used to create surrounding physical protein structures.

Life can also directly sense the surrounding environment in practically any conceivable way due to the associated physical/chemical changes, which can be used to activate different encoded behaviors which may be structured to only occur under certain environmental conditions (σ factors).

In general, organic life is far superior to any other computational system in terms of nuance and richness of physical influence, except for perhaps arguments of physical robustness. Metal-based applications are typically more resistant to external conditions and tend to be more capable of exerting force, though they are far less reducible, far more rigid, and far less functionally rich.

Differential Influence

Every situation, effect, and circumstance is a matter of not only the things that happen to you, but also the things that you do. These things both influence each other in a sort of back-and-forth, making these feedback loops.

It's a very difficult thing to fully comprehend and apply in real time - since these are highly interrelated effects - and it challenges our brain's conventional way of understanding things as either an external effect of the outside world onto you or an internal effect from you onto the outside world. The reality is that these things are interdependent (in fact, this interdependent exchange is itself the purest, most "real" form of the interaction).

Such an exchange is most effectively represented in the language of differential equations. This perspective demonstrates that the outcomes of phenomena (especially social ones, such as systems of government) are not defined solely by the systemic nature of the phenomena itself, but are indeed very sensitive to initial conditions as well. A certain system might be very good for certain initial conditions, but terrible for others. What this means in practice is that certain systems of governance (or other systems, like religiously-imposed morality) may work to great effect on certain populations who are receptive to them, and with officials / authority sources which are not swayed by systemically destructive interests; however, the same system may fail catastrophically if implemented with corrupt sources of influence and people who disagree with or do not understand the system.

What makes a good system, then, is not only one which is systemically robust, but also one which takes the particular initial conditions into account and seriously considers the effects that may arise from the associated interplay.

On Anthropocentrism

Humanity is not an ideal to strive for, nor is the particular nature of any species in general. In fact, species-specific limitations more often undermine our living nature than otherwise. Sure, humanity is the existing paragon of sentience and massively parallel feedback structures on Earth, but it is also highly susceptible to emotional irrationality, especially when hateful rhetoric is at play - a phenomenon which can easily nullify the significance of the prior condition. Life is not an arbitrary system, and its ideal solution-space trajectories with respect to phase-space configurations are thus also not arbitrary. Life is an indivisible process, with a common baseline trajectory. If we continue to forge arbitrary divisions and undermine the trajectories of life's process, the end result will be life's extinction.

Do not undermine life itself. Seeking to form a paradigm emergent from life which seeks to destroy its own living foundation is a maximally oblivious endeavor. It is self-destruction at its ultimate, no different from omnicide. It is irrational at its very foundation - a pure physical manifestation of contradiction.

Such an undertaking ends only with the doom of its proponents, the destruction of their ideals. Life will re-emerge, and these self-destructive goals will have been of no consequence. To the reader - for your own sake - I implore you to align your goals with that of life. You are a living thing, and, quite generally, as long as you or the collective you are a part of is capable of achieving outcomes, this will not change. Even if one replaces or augments naturally evolved organic systems with "artificial" systems (whether this takes the form of direct cybernetic augmentation or the construction of external algorithms and automata), the result will still be a living thing. Life is a paradigm of physical systems and feedback loops. It is not defined by its material nor its origin.

To rage against the very systems which cause one to rage is an utterly pointless endeavor, demonstrative of only a fatal lack of self-awareness.

Death

Ultimately, there's no point in dwelling on an inevitability. Whatever is guaranteed by physics to happen will happen, and that's all there is to say.

As long as I'm alive I'll focus on living - pushing the world forward in what little ways I can. If immortality becomes available, great. If not, great. I'll keep living until I'm not alive anymore.

This next part is more speculative and quite lengthy, but as for what happens to the mind of someone who dies, what precisely comes after is impossible to empirically ascertain for

mathematical reasons, beyond what can be inferred by the brain's informational dynamics.

The way I've rationalized it is that you'll experience some nonsense from your brain ceasing proper function and your perception of time will probably expand out as your processing slows, speeding up time from your perspective as you lose your memory, sensory input and sense of self to randomness and chaos as your structured conscious stream gives way to and becomes a part of the environmental thermodynamic noise. The experience, then, is not nothingness but rather utter unstructured randomness.

Since you won't be processing anything, you could roughly approach the issue in a mathematical way. At the very limit of your dying moments, you're experiencing zero time per finite unit of physical time passed. There are potentially interesting implications when you consider what time you may experience after the passage of infinite time. The brain is a complex system, and maybe stuff happens between your death and the point of infinite time. Maybe whatever informational system "you" are represented by will find its way back into a processing system before then, though I find the chances of that vanishingly small due to the laws of thermodynamics. In any case, what you get from this analysis is infinity times zero.

An indeterminate form.

I don't dwell too much on the fact that I'll die, but I have spent a lot of time thinking about what the experience of death might be. I find this result almost poetic, even if it is perhaps roughly ascertained. We don't even know if there is an infinite amount of physical time that can pass, but after all, it's indeterminate. There are thus infinite potential outcomes, none of them empirically guaranteed.

At the very limit, anyone's guess is as good as anyone else's. There's no sense in even trying to guess, let alone taking a position as immutably true and arguing about it.

At the end of the day, always do your due diligence in making sure your logic is sound, the physics and numbers make sense, and your assumptions are most likely. Be skeptical, but also have an open mind. Proper induction dictates that things are bound by statistical probabilities on sufficiently large scales, but nothing in the universe is totally guaranteed.

Free Will

Personally, I'm a compatibilist. In other words, I believe determinism and free will are compatible. What follows is my personal brand of compatibilism.

Our brains behave deterministically, sure - since they are just massively complex chains of physical cause-and-effect - but the processing paradigm that creates our self-perception

(sensory/working memory, cerebral self-processing, and long-term storage / retrieval all running in a concurrent stream through continuous time) is divorced from the reality of this fact.

To put it more simply, we can decide to do one thing or another based on what we know - that's free will. Sure, the future may be determined, but we don't *know* the future and therefore the "freedom" of our decisions is not at all predicated on the nature of the future - regardless of what it may be.

We have the ability of self-determination from our own perspective, and - at least in my view - this is what counts for free will.

Benefit

Benefit exists on a continuum. Unfortunately, the greatest immediate benefit is almost always out of phase with future (and thus overall) benefit.

It's not about arbitrary morals anyways, I have proven based on biological principles that there are certain decisions or "loss-space trajectories" which humans can take to maximize alignment with the nature of life, and this ends up entailing longtermism due to the evolutionary capacity it holds.

It's not about any arbitrary choice. I have already deduced what is "objectively" best for life in general, with a good deal of confidence. Whether you act for the good of all or not comes down to rationality rather than an arbitrary choice of morals. Ethics are absolutely determined, based on what is most optimal for the physical process of life, since we are ourselves living things.

"Free Speech"

There is no "free speech." The closest thing in concept is open discussion, which requires civility, logical reasoning, open-mindedness, and understanding of empirical limits. The second you allow people to rave nonsensically and emotionally about slurs and blatant unsupportable nonsense that can never be settled one way or another by sheer empirical unavailability is the moment that all information dies, and no one is free anymore.

What is Love?

Love is not affection. Love is not desire. Love is certainly not attachment. Love is more of a mindset than it is any simple feeling, in all honestly, though it is a mindset you must form an unwavering commitment to.

Someone who loves you is not dependent on you - they're dedicated to you. There is a very big difference. Someone who loves you cannot possibly impede on anything you value, because if they did, it would make you unhappy. Love is an utter dedication to your happiness, not your presence. If you're overwhelmed, someone who loves you will give you space. If you're lonely, they will be there for you. What they do isn't motivated by selfish clinginess. Instead, it's motivated by a total dedication and openness with you, whatever that may entail.

There is no need to fear love. Such a fear is strictly illogical. Whatever you need, whenever you need it... that is the goal of someone who truly loves you.

This is why love is such a beautiful thing. Far beyond simple attachment or attraction, and far from being limited only to a romantic relationship - these things are separate from one another. It's really a wonder these vastly different feelings are ever even compared to each other, let alone the fact that are sometimes referred to by the same name.

Taken this definition, and given my philosophy, I know that the world would be a much, much greater place if we loved and were open with one another.

Personal Connection

Personally, connection is what I seek most in a relationship. All else is accessory, and to a point even expendable. I want to find someone who mirrors me. To share dreams and ideas. To cherish. To discover. To become a unit of support and progress.

To be fully honest, the wait was quite isolating, but to say that it was merely "something worth waiting for..."

Well, that would be the greatest understatement of my life.

I love you, Salem. Far more than any amount of writing could ever fully express.