

Exploits of a Determined Developer

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Introduction

The Clifton Strengths Assessment provides the following:

"People exceptionally talented in the **Connectedness theme** have **faith** in the links among all things. They believe there are few coincidences and that almost every event has meaning."

The assessment placed connectedness as my #3 top strength, and I couldn't agree more with the quote above. **For me**, all the utility of the connectedness theme comes directly from a single belief known as **Determinism** and it holds that every event is determined by a combination of previous events (antecedent conditions) and/or randomness (quantum uncertainty).

I think most of us will agree that the Universe unfolds every day according to certain mathematical laws with stunning consistency (planetary motion, special relativity). Every branch of science depends on the causal chain of events (known as causality) to make their testable predictions, and Einstein considered people who under-appreciate causality to be insane (those expecting different results when repeating the same actions).

Our understanding of the macroscopic world (made up of people, planets, and stars) seems to be on firm ground. The fact that the Mars Curiosity Rover is [still out there](#) putting in overtime, is a testament to the accuracy and precision of our models. Our models may be useful, but they contain mysteries and leave plenty of room for interpretation¹.

The mystery I am concerned with here is the **measurement problem** and it occurs when we look at the smallest parts of the Universe, such as light energy. The problem is exemplified by the double slit and delayed choice experiments, and the results of these experiments indicate the Universe behaves differently² when it's not being observed.

There are two schools of thought for determinism and the measurement problem:

- The **soft determinist** believes everything - *except for* free will - is determined by causality. This aligns with the Copenhagen interpretation in which the measurement problem occurs *because* consciousness collapses the wave function.
- The **hard determinist** believes everything - *including* our 'will' - is determined by causality. This aligns with the Everett interpretation in which the wave function never collapses (and continues to evolve into many worlds) and the measurement problem we experience is because of de-coherence (between those worlds)³.

I have been practicing the hard determinist view since ~2010 but have only *recently* recognized the validity of the soft determinist view (thanks to a proponent, Roger Penrose in [this](#) interview).

I now consider the choice between hard and soft determinism to be a genuine matter of preference or personal bias. As my wife Melissa Price once told me, "It's whatever helps you sleep at night!"

However, just because both options are 'valid' does not make them equal! I argue that the hard view provides a simpler view of reality (i.e. less mysteries) and in doing so has several strengths over the soft view.

Strengths of Hard Determinism

Semantics

Free Will

First, I just want to get out of the way that I don't see the hard determinist view as being particularly extreme. For me, it's a simple matter of recognizing there are countless external forces outside of my control, **that when combined**, *totally* influence my decisions/thoughts.

In other words, I admit to being free in the sense of experiencing thoughts, deliberation, and making choices to do whatever I desire. However, I am no freer to choose what to desire than I am to choose who I love or what my favorite color is. It is the countless things I have no control over that ultimately decide my 'free' thoughts/actions, so the 'free actions' **are as good as** being out of my control (not free).

Consciousness

In his book *The Future of Humanity*, Michio Kaku defines **consciousness** as the number of variables we, or an entity, consider when formulating a plan or strategy to bring some specific goal into fruition. He gives the most basic example of consciousness as a thermometer.

Thinking of consciousness in this measurable way means the more we learn from our past, and the more we refine our mathematical models to better predict the future, the more conscious we become. Likewise, simply considering a new point of view makes you more conscious.

Proactivity

As a hard determinist, by the time '**now**' happens it's just a physical process (a force of nature) and any supposed will on my part is simply out of the equation. If I want something to get done, I must be proactive about it and start making moves to affect the **future**, while I can.

An example of proactive action is having a courageous or meaningful conversation with a family member, friend, or colleague. Talk about real problems that matter to you and seek to understand their point of view. Then, since you'll be aware of their feedback and views, you'll be more conscious of the problem at hand and better equipped to overcome it.

Reference Framing

PBS Space Time demonstrated how it's just as valid to use free falling as your inertial frame of reference and consider sitting on the couch as accelerating. In physics there is no preferred frame of reference - that's what General Relativity is all about!⁴

Most people intuitively think of themselves in the first person, but is it not equally valid to think of yourself as (or a part of) the entire Universe? If we think of ourselves as a single spacetime entity with limited self-awareness, we⁵ can seriously say things like "I am you".

By analogy, imagine that one of your fingers gained self-awareness and realized that it was part of the larger 'you'. What if all your fingers were conscious and at armed conflict with each other? Wouldn't we expect a finger that realized all the fingers were just part of the same hand find new compassion and understanding for its neighboring fingers? It seems to me that every time we recognize a new frame of reference, a new connection is made, promoting empathy, understanding, acceptance, and compassion.

I leverage reference framing at work to view things as a supervisor or end user would, and to better understand and collect their requirements. It also helps me value early end user testing and feedback. I practice reference framing in my everyday life to not take other people's actions too personally, and to practice understanding of myself and others; we're all handling our own baggage that came from the chaotic hands we were dealt.

Entanglement

You, by reading this, and I by writing this, are now connected through causality! This was not the first time we've crossed paths, however. At the big bang we were occupying the same place at the same time! How unlikely it is that we both developed consciousness out of that chaos and are now aware of our own humble beginnings and crossed paths again in this fashion. How lucky that we are to not be dust and rock! For a fleeting moment, we are humans, with the ability to reshape planets and in principle any other part of the Universe to our will. We carry a special weight not just due to our nearly unlimited potential to direct change, but also in recognition of the downstream consequences of our actions.

I claim that because we are lucky enough to perceive our own causal influence, we therefore have the responsibility to try and do so. Put another way, **because we're self-aware, we are morally obligated to strive for higher and higher levels of consciousness** (e.g. learning from our mistakes).

This view of morality is in direct contrast to a soft determinist, who has the burden of making the *correct* choice at every given moment. I conjecture that it is the thought of having made 'wrong choices' that keeps most of these people up at night with feelings of regret or unacceptance!

Optimism

If we fast forward our best physical models of the Universe, we find that ahead of us lies a great, yet ultimately hopeless battle against entropy⁶, in which eventually all the information in the Universe will be lost to black holes and subsequently their evaporation. This is known as the heat death of the Universe⁷, and in this sense nothing we do matters!

If *nothing matters* because of entropy, and *everything* matters because of causality, where does that leave us?

As the Universe dies, all the seemingly endless complexity we see today in nature will be lost, so why not appreciate its beauty while we can? If time is our only currency, why not make the best of it? We are free to each find our own purpose and happiness⁸, and I am optimistic that with our models and understanding of the Universe we can achieve almost any goal we set our minds to.

While exploring my own purpose, I found it crucial to be honest with myself and others. Why waste time miscommunicating, especially with yourself? This includes accepting and understanding (without casting blame) where I'm at **right now** and how I got there. Being honest with myself helps me recognize the things I need to stand up for and protect, and I'm sure my supervisors appreciate my frankness in communicating my needs.

Personally, I find joy in creating art, music, and software, spending time with my family, and exploring philosophy and physics. Further, when I feel unhappy, I immediately try to dig in and figure out the core reason why. Since I believe our actions are mostly determined by our beliefs, I usually start by questioning any related assumptions and testing them for consistency and justification -- e.g. beliefs about people, relationships, work, what I value, my expectations, etc. I have found that *If you don't look inward, it's hard to create outward changes!*

Conclusion

Ultimately, we are each responsible for finding our own happiness. However, this seems to be easier for me, with the determined view, compared to *some* others I have observed:

In the specific case that motivated me to write this article, a close family member is stuck in the past and unable to find acceptance, forgiveness, and love for themselves. They have told me, "I wish I could see it like that" when referring to my point that we're all doing the best we can, and we're all just dealt a hand from chaos. For me this must be true - I can't see it any other way!

So, I treat the hard determinist view as a tool; a means to be successful and walk with tranquility through the otherwise insufferable human condition, and I share it hoping to help spread the quantum revolution and promote the betterment of mankind.

When I speculate about what the future would be like if more people followed this view, **I see good things**. Thinking about our judicial system in particular; under hard determinism - guilt or innocence would be replaced by simply confirming causal influences (which are ultimately the responsibility of society, not the individual), and justice would measure by mitigation (*within* a reasonable doubt) of future causal impact - in other words, the system would be focused on rehabilitation, not punishment.

It starts with each of us though, so I encourage you to explore and question your own reality in effort to **become more conscious!**

Endnotes

¹ Wikipedia maintains a [list of unsolved physics problems](#). However, for the serious reader who want to explore the mysteries of physics, I recommend [The Emperor's New Mind](#) by Roger Penrose. This book covers a wide range of topics, including the **limits** of systemization and algorithmic (computable) procedures, and how we as humans have something special that allows us to solve the non-computable class of problems.

² When the universe is not directly observed, it goes into 'superposition', or a probability wave made up of all (weighted) possible positions/outcomes. There is also a 'spooky action' of entanglement where it does not matter the amount of time (backwards or forwards) or the physical distance between the original event and the observer.

- PBS Space Time covers both of these topics in [The Quantum Experiment that Broke Reality](#) and [How the Quantum Eraser Rewrites the Past](#), respectively.
- John D. Norton further describes The Measurement Problem [here](#) on the University of Pittsburgh Department of History and Philosophy of Science website

³ PBS Space Time covers [The Many Worlds of the Quantum Multiverse](#) and [How Decoherence Splits The Quantum Multiverse](#).

⁴ PBS Space Time's [Is Gravity An Illusion?](#) covers the subtle difference between Newtonian and Modern frames of reference. They also have a whole playlist for [Relativity & Curved Spacetime](#). Once the curved nature spacetime is accepted as a valid frame of reference, we can do weird things like [make a circle that's a straight line](#), or [make a square with 5 sides](#).

⁵ The quantum revolution is upon us and impacting our culture! Here are just a few examples I observed:

- Ferry Corsten's seminal *Blueprint* album explores the role of **love** in our quantum models (the tracks, [Wherever You Are](#), and [Eternity](#) in particular). I speculate that the movie *Interstellar* hits close to the truth on this matter, and that love is like a force of gravity, and just as mysterious. E.g. maybe its how whales navigate around the world back to their homes, and why when we miss someone it feels like it hurts every part of our body.
- Fery Corsten also released the single [I am you](#).
- Simon Amstell did a [Netflix](#) special where he asserted that since the past made us who we are, wanting to change the past is a form of self-harm, and that he understands *you* because he *is* you.

⁶ The second law of thermodynamics states that entropy (a system's measure of uncertainty or randomness) must always increase. This might seem counterintuitive to *us*, because as living beings we thrive on creating structure and organization – we see entropy lower all the time! However, all the localized order and structure we create on earth comes at the expense of our Sun burning which is a finite power source. So, while entropy might be lowering daily for us on earth, it is still increasing globally. It's easy to see entropy in action though, for example just throw a rock into a pond and watch the ripples settle down.

Entropy may be a guarantee of our mortality, but it's also what makes self-awareness so rare, and why we should be appreciative of our existence.

For more info, see the Space Time episode on [The Misunderstood Nature of Entropy](#), and the follow up [Reversing Entropy with Maxwell's Demon](#) which shows how even conscious thought is a quantum action and is constrained by entropy.

⁷ Heat Death seems to be an inevitability – eventually all the stars will burn out, and there will be a long era of nothing but black holes, and then eventually too those will evaporate. PBS Space Time covers all of this in [How Will the Universe End?](#)

⁸ [Optimistic Nihilism](#), The philosophy of Kurzgesagt. Top comment sums it up well: "If you enjoy the time you wasted, you didn't waste any time".

A similar view is [Existentialism](#): "*purpose is something we define.*"