**What Quantum Physics Can Tell You About Your Identity**

Are we born the way we are, or do we get to decide?

Quantum Physics helps point the way.

remember well the last days of high school. There was a general sense of apocalypes combined with the hopeful ideal that we will all soon be moving on to a better place. At this similitude of death and rebirth, it seemed like there was a frantic polarity between a desire to move on, and one to grasp everything that you have ever loved and never let go. Then, right at the center of all of this, we created artifacts of the moment, by signing each other's yearbooks. I remember happy but desperately clingy signaures such as, "let's keep in touch", "call me this summer", and "I'll always remember ..." But there was one theme, interspersed throughout many of these from-the-hip memorials and epitaphs, which shocked me. For whatever reason, this idea was quite popular for yearbook signatures that year, and it populates many pages of my yearbook. It was the loving, yet damning, request to "never change" and "stay who you are". Never change, I wondered? Why on earth would I never change? What could possibly be so precious about my 18 year old self that i ought to solidify it into an eternal self-ness? This threw me into deep thought on what it is that we all think we are, and why we fear change. This is a thought process which I'm no entirely sure I've recovered from. Can I say that I know What I am? Can we know what we are? Or does it only matter what we do? I'm not even sure if these questions are significantly different, yet it speaks to a question which hits on so many aspects of life. What is my identity? Or in other words, are we what we are, or are we what we do?

Being the nerd that I am, my quest started with science. Sir Isaac Newton provided the world with, among many other things, the laws of motion. He, along with certain other brilliant minds of the 17th Century, opened up the way for computational mathematics to make sense of the world around us to an extent never before imagined, and to help understand what was accepted as the true and absolute nature of motion and the interaction of objects in motion. Stay with me here.

The laws of motion, Which Mr.Newton developed, included a law which started that an object at rest or motion will remain in that rest/motion unless acted upon by an outside force. This law inherently started that if one could know all information about the two objects in contact, and all is knowable, then one could predict exactly what outcome their meeting would create. At the heart of these laws lies a seemingly simple but absolute assumption, that by knowing the quantifiable information we can predict outcomes with certainty, and, furthemore, that all things are both essentially knowable and quantifiable. While this idea was near-revolutionary at the time of its creation, it soon became common sense as an approach to other scientific questions, and eventually, it crept into raalms never before approached by the "hard sciences"

Newton was a founding mind of what we now call Classical Mechainics. He not only that truth could be found empiriaclly by an appeal to data, but provided a method for it. He invented Calculus. Another eminent scientist, Pierre-Simon Laplace, following in the footsteps of Newton, pointedly making the claim, "that an Omniscent Calculator, provided with the exact knowledge of the state of the universe at present, would be able to predict the entire future". This approach to science and movement allowed much of the technological advances of the 20th century to happen. However, the effect of Newton's ideas soon reached far beyond traditional physical science, and into the realm of psychological science

**Behaviorist Psychology**

This assumption, that we could achieve absolute knowledge of people, led certain thinkers such as Ivan Pavlov and B.F.Skinner to establish a major stream of psychology, behaviorism, that believed that with sufficient knowledge of past and current facts, a perfect prediction of future human knowledge could be made. A lot of people still believe this today. As being of a physical world, this thinking suggests, our behavior could be just as concretely predicted as any other interacting object in space, simply by knowing the forces at work upon them. This thinking pervades most of the social sciences. It is very attractive because it promises both to tell the future and un cover the "nature" of our human lives and selves. But there is also something profoundly uncomfortalbe about it.

John Watson, a behaviorist, confidently wrote, "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become type of specialist I might select-doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors." Now compare that statement to one made by the physicist and mathematician P.S.Laplace, who stated, "We may ragard the present state of the universe as the effect of its past and the cause of its future. An intellect which at a certain moment would know all forces that set nature in motion ... would embrace in a single formula the movements of the greatest bodies of the universe and those of the tiniest atom; for such as intellect nothing would be uncertain and the future just like the past would be present before its eyes."

The psychology of the behaviorists, which has outlived the movement itself, makes the same claim, simply borrowed from basic Newtonian Physics, that knowing all forces at hand, one could accurately and absolutely predict future responses. If we are a pre-difined, concrete, being, with no dynamic self determination in changing "What we are" the must this be true? Stephen Cave, in his Alantic article "There's No Such Thing as Free Will" sure thinks so. They try to make a strong argument that we are that we are, and not what we do. You might even summarize this line of thought to be that we simply "are" what is done to us.

Put simply, Newton's classical mechanics has profoundly affected the stydy of the human mind. Hilary Putman, an eminent philosopher and mathematician, who was also critical of behaviorism, described that logical behaviorism as a belief that, "the brain may work the way it does because it approximates some system whose laws are best conceptualized in terms of coutinuous methematics". These Newtonian Classical Mechanics have been hard to get beyond in nay field of study. But do they really tell us that much about ourselves? Luckily, within the last century, such absolute assertions about our reality have been, to some degree, debunked.

**Quantum Mechanics and Me**