On Will

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Determinism versus Randomity versus Will

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by Geir Isene

geir@isene.com :: http://www.isene.com

Do you really have a choice?

On the subject of choice, there are two options: Either you really have a choice, or the appearance that you may choose is simply an illusion.

By "choice" is meant the possibility of "will" being exercised. Thus the subject of choice is strongly related to the subject of free will. Do you really possess free will?

Since there are many situations where people seemingly cannot choose what they want, we may refer to free will as potential free will.

So, you either have potential free will or no free will. In the latter case, it may not even be called will as everything is then simply a series of events with no will involved.

Let's explore the possibility of no free will: You have no choices, it is all predetermined. Everything is a series of events, random and/or strictly sequential. There is no will involved and everything is determined by the laws of the physical universe. This assertion we label the "Physical Theory" or the "Objective Theory".

This is a common view among natural scientists and is gaining ground in the general population. In the book "A brief history of time"[1], the astrophysicist Steven Hawking explains it very well: If you know the state of the universe at any given time and all the laws that govern it, you can calculate all consecutive events. You can determine every single motion in the universe at any time. The brilliant French scientist Pierre-Simon Laplace formulated this idea in a paper published in 1814[2]. Although it has been proven that such a thought experiment is impossible[3], the proof still does not disprove the universe as causally deterministic. It follows that there is no place for free will.

Many physicists disagree with Laplace in that they assert the possibility of randomness in the universe. Random events would break the prospect of calculating the future. However, it still dosen't necessarily leave room for any will or real choices.

So, we see that there are two Objective Theories: The Deterministic Model and the model that allows for random events, the Random Model.

The Objective Theories are attractive in that they present a complete system within the boundaries of the physical universe without any external influence. The beauty lies in what it can prove; anything physical can be proven in and by the physical universe.

It also makes the science of physics the ultimate profound science able to explain it all.

In the Objective Theory, there is no will that can cause anything. Everything is an effect of an earlier effect or is simply a random event. With no will there are no reasons why something happens.

If the world view of no free will is the truth, it has ramifications into most fields of human endeavour. It most obviously disrupts the field of religion as religions in the main builds on the notion of free will and the possibility of choices. But it also disturbs the fields of philosophy, ethics and law. With the removal of the concept of will comes the subtraction of responsibility.

[1] http://en.wikipedia.org/wiki/A_Brief_History_of_Time

[2] English version published in 1902: http://www.archive.org/details/philosophicaless00lapliala

[3] P.-M. Binder, "Theories of almost everything", Nature, 455 (2008), 884-885

There is no accountability for actions if there is no will behind them. There is no-one to be held responsible if the person had no choice. Thus the human systems of law and order is merely an illusion. As is the apparent drive for happiness or attaining one's goals. All such pursuits are appearances that are bound to happen or happen by chance. The appearance of choice is an illusion. There is no reason for living.

The nullification of responsibility may seem glum to some and a relief to others. But it hardly matters as it either seems that way due to chance, or it was bound to happen.

There is no wrongness or rightness in the Objective Theory. There is only "isness".

In the Objective Theory, there is no real difference between a human, an animal and a well crafted robot. Artificial intelligence is within reach.

The physical universe is composed of space, energy, matter and time. Everything within it is governed by its laws, whether the laws allow for random events or not. So in order to have free will, it cannot be governed by those laws.

The power of choice must at least in part be separate from the physical universe in some way. And only if it can be potentially completely separate can it be potentially fully free. Free implies free from space, energy, matter and time. It does not suggest that free will is somewhat physically located outside the universe as that would still subject the will to physical laws and hence it would not be free.

Let's explore a theory of free will: You may choose. It may be up to you. You may change the course of events. You are accountable for your actions and are ultimately responsible. This assertion may be labelled the "Metaphysical Theory" or the "Subjective Theory".

Again this may seem glum to some and a relief to others.

Free will imposes changes on the physical universe if only on a very small level, perhaps much like the "butterfly effect"[4].

Free will introduces the "observer" into the universe, an element that seems to fit well with quantum mechanics. Lee Smolin in the book "The trouble with physics" lists the five great problems facing the science of physics today. The second problem reads: "*Resolve the problems in the foundation of quantum mechanics, either by making sense of the theory as it stands or by inventing a new theory that does make sense*"[5]. The external observer possessed with free will seems to resolve the problems of the foundation of quantum mechanics as will be covered later.

As free will lies outside the realm and laws of the physical universe and acts as an external influence, it cannot be directly proven or disproved in and by the physical universe. Any proof can only be circumstantial. The weakness of this theory is that it can not be proven to those who will accept only direct physical proof of a phenomena.

Furthermore, as the free will is exterior to the laws of the physical universe, it supersedes time. Hence it was never created and will never be destroyed. It may or may not be the cause of the physical universe but it was not caused by it. In fact free will cannot be caused by the physical universe as nothing can beget something outside its realm of influence. Or in a simpler form: "Nothing can

[4] http://en.wikipedia.org/wiki/Butterfly_effect

[5] Lee Smolin, 2006, The Trouble with Physics, Houghton Mifflin Harcourt, p. 8

beget something with greater potential than its own". This would eliminate the possibility of creating real artificial intelligence. AI may certainly mimic free will and thus create the illusion of a computer possessing potential free will. However, it cannot transcend the laws of the universe in which it exists.

Even though free will is exterior to the physical universe, it is influenced by it to a varying degree. It looses its potential in ratio to its identification to the physical universe. This may explain the varying degree of apparent free will.

This poses the question, if the Subjective Theory is true, of whether a belief in the Objective Theory would be a self fulfilling prophecy. If on the other hand the Objective Theory is true, a belief in the Subjective Theory would merely be a belief in an illusion for which the person bears no responsibility. Another question that can be posed is who would be relieved by which theory. The answer to these questions are subjects for other articles.

It is worth noting that in this discussion of the free will, one could simply reduce the it to a discussion of whether "will" exists at all. If the answer is "yes", reality is neither purely deterministic and/or random. "Will" is that other factor beyond determinism and quantum randomness.

A case can be made for the physical universe and the many "wills" within it being a whole rather than two separate concepts - where the physical universe is the result of a consensus of the "wills" involved.

Whether you choose to believe in the Objective or the Subjective Theory may not really be a question at all. If the Objective Theory is true, your belief is not your choice to make. If the Subjective Theory is true, it is either you choosing to see the truth or your choice to disregard the truth and thereby possibly making you more of a subject to the physical laws.

The choice may or may not be yours.

Can the universe be deterministic?

Determinists believe the universe is fully governed by causal laws resulting in only one possible state at any point in time. But can the universe actually be causally deterministic? Let's see:

1. For a system to be deterministic, its underlying rules must be consistent.
2. For a system to be deterministic, its underlying rules must be complete.
3. No system of rules can be both complete and consistent per Gödel's Incompletness Theorems[6].
4. Thus no system can be deterministic.

This would rule out Laplace's idea of a universe being causally deterministic. What is left then of the Objective Theory is the Random Model, allowing for the incompleteness or even inconsistency made inevitable by Gödel's Incompletness Theorems.

The full and complete reassurance of certainty seems more elusive than ever. But the absolution from all responsibility may still be possible through the Random Model.

Next we will explore what the Subjective Thoery could entail.

[6] http://en.wikipedia.org/wiki/G%C3%B6del%27s_incompleteness_theorems

Extrapolating free will

If there exists potential free will, free of any physical restrictions, that free will cannot have been created as time is a physical property. Thus the free will supersedes the physical universe, or co-existed with the physical universe if the universe has no beginning. If the latter is the case, one question remains: "Can anything exist that wasn't created?"

As the free will causes changes in the physical universe, it represents the "cause" and space, energy and time is the "effect" of the free will acting.

The physical universe then is truly "effect" and is not capable of causing anything – it has no will of its own. The free will on the other hand can not be affected by anything except by its own choice as it is by its nature potentially free from the laws of the physical universe. The potential is alloyed by it's own considerations. Therefore, anything that the free will experiences is by its own volition. By choosing otherwise, the free will experiences otherwise.

While the physical universe is total effect, the free will to be truly free is total cause.

Whereas free will changes by its own choice, its choice may be swayed – by its experiences and thus its choices. A feedback mechanism is then seen as the free will chooses its own experiences and is then affected by them. This may lead to the free will apparently loosing control of its will by association and believing it has less free will. It will then act as less free, less "cause". To change this feedback mechanism, the free will can be coerced, perhaps by an other free will to believe it is more "cause" and less "effect" and hence bring the situation under control of the free will once again.

Any coercion will do as long as the free will believes the solution presented will work. This may explain how many people are helped by a wide plethora of practices aimed at bettering the individual. It may also explain the Placebo effect.

Cause and Effect

A realist believes in the RWOT (the Real World Out There)[7], the universe existing wholly independent of it's harbouring observers. This branch of thinking is called "philosophical realism".

An alternative view is that of the RWIH (the Real World In Here)[8], the universe being a consensus reality of the wills involved in creating it.

Suppose a potential free will is able to create a complete reality on its own - like what most people experience when they are dreaming. While there is enjoyment in playing a variety of solitaire games, there can be more enjoyment of playing games where other wills are involved as this creates a balance of cause and effect for self. Hence the creation of a consensus reality.

The physical universe may be seen as such a common "playing ground" where each participant contributes own visions and realities but where everyone agrees on a set of rules.

If a potential free will is only affected by it's own considerations, how can it then know about other potential free wills?

If there is a potential for cause, and free wills emerge from this potential cause, then individuals have a common source point.

Think of the potential cause as a blank piece of paper. From this paper arises points (separate cause points) that decides to BE (able to draw on the paper). Each point draws its own little picture (it's own universe). As two points interacts with their drawings, they start creating a common reality. As more points interact with their drawings, a broader consensus reality emerges. Wikipedia is an example of such a co-created reality.

Individuals emerging from a potential cause parallels what is seen in particle physics where the potential of space gives rise to pairs of particle/antiparticle.

The cause is pure potential. From this cause then comes decisions "to BE", each with it's own reality or universe thorough its own considerations. Each such individual basically is his own universe with all its considerations. Individuals have the power of limitless consideration.

Each individual has the potential to cause effects through considerations. Nothing exists beyond what is considered. Anything existing is due to considerations.

Every consideration creates an effect and is motivated by the ability to cause. For every consideration, there is cause creating effect, giving rise to the fractal structure of universes.

To create the consensus reality we know as the physical universe, it requires an enormous amount of considerations - all the way up from basic laws of physics and up though the way they combine into structures and further up to how each individual interacts with the physical universe through a body and even further up to creating a life within the consensus reality. With an enormous amount of individuals participating with a massive amount of considerations, the complexity of the physical universe can be rather staggering.

To be part of a common "playing ground", the individuals must obey the rules of the consensus reality.

As the individual participate in the consensus reality, it takes on a massive amount of agreement. It is much like any other game, like soccer – to participate,

[7] Lee Smolin, 2006, The Trouble with Physics, Houghton Mifflin Harcourt, p. 7

[8] Coined by the author

one must abide by the rules. An individual is bound by the agreements of the physical universe. Hence he cannot simply lift an object by pure consideration unless he solicits agreement by all individuals in the consensus reality - or unless it is somehow allowed by the rules. This may explain the lack of displayed psychic abilities. It may also explain magic (someone found a buried allowance for certain magic to be displayed, or a loophole in the rules).

If such a Subjective Theory is true, then one would expect to see a variety of phenomena such as OBE (Out of Body Experience) and remote viewing. Most realists would be lost earlier than this paragraph, perhaps by preconceptions or emotional stands. The Subjective Theory would however offer explanations to phenomena that the Objective Theory cannot satisfactory explain or unscientifically dismisses altogether. To be complete, the Subjective Theory will have to offer further testable predictions as well as possibilities for falsification.

An individual existing within the consensus reality is very much at effect simply because of the agreement to the rules. The individual may become even more effect by agreeing further to other's considerations - by taking them on as one's own. Layers upon layers of considerations results in lower levels being masked by higher levels and can then be referred to as "unconscious considerations".

There is a gradient scale of free will that shows how much an individual is in agreement. For an individual to rise on this scale, a solution must be presented matching the individual's level of agreement. A heavy drug addict, heavily into agreement with the physical universe laws and other's considerations (same thing) needs a very physical solution in order to accept its workability. An individual high on the scale need the simplest of solutions – like what is described by the British philosopher Alan Watts when he relates why any practice of individual improvement can work. He says that the only reason an Eastern guru would ask someone to go through a regimen of mental and physical exercises is because they cannot simply "get off it" - they need to feel they deserve the insights before they attain them[9].

As an individual is only bound by his own considerations and can only be hurt or become effect by his own considerations, resolving its own considerations is the only solution there is. This may then explain why placebo works – an effect the medical societies should embrace wholeheartedly. Any solution works only to the degree that it can lure the individual into considering that it will work. This is why any religion can work, or psychotherapy, or psychiatry, or healing, or mediation, or simply anything as long as the individual considers it will work. With this comes tolerance of other's realities, of other's religions and views. Some techniques reach the level of agreement of more people than other techniques. Workability is enforced by the individual's perception of the value of the solution. If the solution includes much suffering, monetary cost, secrecy or scarcity it will often be seen as more valuable and hence has a better potential of getting some individuals to accept it as workable.

As any solution can work, and it will work the best if it strikes at the level of free will exercised by the individual, there is a scale of solutions from the most physical to the very light. At the most physical levels, we have solutions such as band aid, surgery, medicine, vitamins and up through various therapies and rituals to tackling the results of the individual's most intimate considerations.

[9] http://www.youtube.com/watch?v=fCSsiF3BQoQ

But above all this is addressing the individual's considerations directly.

Instead of addressing the individual's perceived problem, one could address his considerations about it to release his free will. His considerations is after all the only thing that anchors him to the problems. Making him simply look at his own considerations layer after layer should bring him to whatever level he wants. This is what gives hope for the simplest of approaches like the KHTK (Knowing How To Know) by Vinay Agarwala[10].

There is evidence in physics supporting such a Subjective Theory outlined above. Quantum Mechanics (QM) hints at the observer being an active ingredient in creating the reality we see.

[10] http://vinaire.wordpress.com/

A Subjective Collapse Theory

What makes the quantum mechanics wave function collapse?

This has been one of the great questions giving work to physicists ever since Erwin Schrodinger came up with his mathematical explanation for the wave/particle duality. In the aftermath of the mathematics came philosophical questions like: Is the universe objective? Does it exist if we are not observing it? Are there many universes? Coexisting?

Particles are waves and waves are particles. Simultaneously. Apparently they are both until they are measured. Then they settle to become a particle or a wave. The famous double-split experiment[11] shows what is known as a "wave function collapse"; the wave function describing the probability of the particle's location collapses to one of it's two possible states.

This concept was taken further by the late John Wheeler in his "delayed choice" thought experiment. It postulates that measurements here and now can determine the path that a photon has been travelling for billions of years[12]. Such disturbing ideas go back to Erwin Shrodinger's thought experiment devised to show the absurdity of some interpretations of QM. When Schrodinger put forth his "Schrodinger's Cat" as an attempt at a reductio ad absurdum, he only sparked a flurry of interesting interpretations.

Schrodinger's cat describes a closed quantum system - a box with a cat. It's life depends on whether a vial of poison is broken by a hammer linked to a Geiger counter that is triggered by a possible radioactive emission from a small piece of Uranium. The possibility of the Uranium emitting a particle is what makes the system undecided until someone opens the sealed box, observes and thereby collapses the quantum system. The eminent physicist Eugene Paul Wigner extended the conundrum by asking when the system is decided from the next person's perspective; when his friend opens the box or when he is told whether his friend found a dead cat inside? This extension is known as Wigner's friend. It probes the philosophical boundaries to Schrodinger's cat.

The interpretations of QM ranges from the strict deterministic like some Objective Collapse Theories claiming that all seemingly random events were decided at the Big Bang, to theories accepting an inherent unpredictable randomness in the Universe to a theory known as Consciousness Causes Collapse. The latter is a version of Wheeler's Participatory Anthropic Principle[13] and claims that an observer is the active agent deciding the state of a quantum system by collapsing it. This moves the conundrum to the philosophical debate about the nature of consciousness.

Most criticisms of the idea of Consciousness Causes Collapse goes along these lines:

"Was the wave function waiting to jump for thousands of millions of years until a single-celled living creature appeared? Or did it have to wait a little longer for some highly qualified measurer - with a PhD?"[14]

The criticism suffers from a logical fallacy in that it carries a hidden assump-

[11] http://physics.about.com/od/lightoptics/a/doubleslit.htm

[12] http://discovermagazine.com/2002/jun/featuniverse

[13] http://www.abc.net.au/rn/scienceshow/stories/2006/1572643.htm

[14] Bell, J.S., 1981, Quantum Mechanics for Cosmologists. In C.J. Isham, R. Penrose and D.W. Sciama (eds.), Quantum Gravity 2: A second Oxford Symposium. Oxford: Clarendon Press, p.611.

tion; that which has consciousness must be a thing and must have evolved within the physical universe. While it may seem obvious to some that consciousness can only be in the domain of physics, it is never the less a hidden assumption.

Steven Weinberg wrote an article published in Physics Today, November 2005, titled "Einstein's Mistakes"[15]. He makes a good argument for why QM can indeed be treated deterministically:

"*The Copenhagen interpretation describes what happens when an observer makes a measurement, but the observer and the act of measurement are themselves treated classically. This is surely wrong: Physicists and their apparatus must be governed by the same quantum mechanical rules that govern everything else in the universe. But these rules are expressed in terms of a wavefunction (or, more precisely, a state vector) that evolves in a perfectly deterministic way.*"

Unfortunately Weinberg's argument suffers from the same logical fallacy as noted above. His hidden assumption is quite visible when it starts with: "*This is surely wrong:...*" Weinberg's argument is only true if the observer is within the domain of quantum mechanics.

If consciousness would exist independent of the physical universe (or indeed any physical universe), it may be the missing element in the reason for wave function collapse. Now this introduces the "subject" in a subjective collapse theory. This is the observer, the individual mentioned earlier.

Before one dismisses a subjective collapse theory on emotional grounds, it should be noted that no theory is complete without having explored all possible weaknesses and hidden assumptions. The possibility of an external subject causing collapse should warrant investigation.

If free will exists, it must exist outside of the physical domain and as such is indeed an external observer of the quantum system known as the physical universe. If an external subject exists separate from the physical universe to observe the event, it does not necessarily imply that it posesses free will. However, the case for free will has been argued earlier in this article.

Let's outline a Subjective Collapse Theory as a very simple WOIM list[16]:

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[?"Schrodinger's Cat"=True & "Subject needed for collapse"=True]
  OR:
    Quantum system undecided
      Particle possibly emitted
      Particle possible interacting with solid matter
      Event observed (by cat)
    Quantum system decided
      Event observed by you as the subject
  Each subject has its own reality
  Common reality is created by interacting subjects
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As you can see, this logical breakdown treats the Schrodinger Cat's thought experiment as true and not merely a reductio ad absurdum. Given that the Schrodinger's cat experiment is true and it is caused by a subject observing the event, each subject would have its own reality and what is viewed as "objective reality" is then caused by subjects interacting.

[15] http://scitation.aip.org/journals/doc/PHTOAD-ft/vol_58/iss_11/31_1.shtml?bypassSSO=1
[16] http://www.isene.com/artweb.cgi?article=012-woim.txt

Perhaps the quantum randomness we observe is really the results of subjects possessing free will creating a consensus reality through their considerations.

This is not an attempt at logically proving a subjective collapse theory but merely to propose it as a possible interpretation of quantum mechanics[17].

[17] http://en.wikipedia.org/wiki/Interpretation_of_quantum_mechanics

A final note: Unification

The search for unification in physics has been a holy grail for centuries. The Subjective Theory (including the Subjective Collapse Theory) would introduce a unification of an order higher than that of physics. It would unify the natural and social sciences. It would unify physics, psychology and philosophy and their siblings.

It would also bring the notion of responsibility into every science.

The question of unification in physics may boil down to the simplest of ideas: That reality is reality by consideration only and that the laws of physics is not the most senior concept describing our universe. The consideration that those laws exist would be the most senior concept. Beyond that there would be only potential cause, and this potential cause causes effect simply because it can. In that one may speculate about multiverses[18] as a possible logical outcome of the pure potential cause.

This article does in no way comprise a complete theory. It simply outline some ideas for a theory, perhaps enough to spark some interest in looking at reality as consensus consideration.

[18] http://www.daviddarling.info/encyclopedia/M/multiverse.html