Die Hypothese der Fütopi

«Die Welt zwischen null und eins»

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Abstract

(same as in the e-mail, just originally indented section are replaced with list)

Here we're proposing an idea, that everything's every property (or what we referred as dimensions) like position, heat/temperature, are all described by three variables, S, N, and A from the perspective of the observer that's observing the object. Which:

- S, is the value the observer has observed.
- N and A are used to describe the observed object's perspective. Where N is like origin and A-N is the unit length. So the value of the object that the object itself observes will be (S-N)/(A-N).

And if the value of the object follows any kind of equations (maybe like free fall equations), the equation will have to use the value that's observed by the object itself, which is (S-N)/(A-N).

So for example, Bob are measuring Alice's height. Bob uses metric system, while Alice uses Imperial system. Then Alice's height will be represent as {S=160,N=0,A=2.54} which basically mean Alice is 160 unit length (cm) to Bob's perspective, and (160-0)/(2.54-0) (inch) unit length to Alice's perspective. In this case it seems like we're just changing units, and basically we were. But you'll have to remember sometimes those two perspective will share the same unit *name*, like in Special Relativity, objects both share the same unit name (second) while they aren't the same. And also the perspectives over time might not be same itself, like how if Bob is driving a spaceship that's originally traveling at 0.5c and later accelerates to 0.9c, though both "second"s in those two time are measured by Bob, but they're different. Hence perspective of the observed object may also change over time, and that's why we're also considering them as variables rather than constants.

The advantage this setup gives us is that, when two perspective isn’t synchronized, we can find a situation where to an object’s perspective, they’re flying at a straight line. But for other observers’ perspective, they might be moving randomly (nonsensically), they might doesn’t seem to follow any physical laws. Yet for the object itself, they sure are following physics laws. Putting this idea on quantum phenomenons, we can say that because when we observes a particle we’re interacting them, so their perspective are forced to be a certain value (follow the our physics). Yet when we aren’t interacting with them, their perspective can change at their will, which will cause the particle to move wildly to our perspective, even though they’re still follows physics rules to their own perspective.

Prescript: What are we trying to achieve

We're trying to build a theory, or a template, that can describe everything (aka Theory of Everything, TOE). We know currently scientists are trying to build a TOE base form quantum mechanics (hence trying to describe general relativity in a quantum way). But since until now, scientists are still working on it, I think why not just try the other way, I mean it hasn't been completely proven impossible, so it worth a try. Which led me to setting the goal to develop a theory that's both classical and continuous (and that's pretty much why we have the third concept in the next chapter, though it still have plenty stories behind those decision, but it's not technical thing, so just take it as a preference).

Core Concepts

Here we're proposing a way, of how the world might actually work. And here's what we came out.

1. First, everything have a value ***E*** which is their existence, (something like the total energy of an object, but not necessary limited to energy). In short, ***E*** means how much an object is influencing or noticed by another object. So sun has an enormous ***E*** during daytime, while a smaller yet still consider large ***E*** during night time considering we didn't see it directly yet its influence is still there (for example, tides).

2. Second, everything has their perspective, the way they see the world, denoted as ***N*** and ***A***. Where ***N*** is like the origin and ***A-N*** is the unit length. And their current position ***P***. In following plots, ***P*** is used to denote the position we observe (if can without collapsing it), while the position of the object that's been observed by themselves will be $\frac{P-N}{A-N}$.

    1. Also if an object follows a physical equation, the parameters the equation is using has to be the value that's been observed under the object itself perspective. Just like in Special Relativity we consider the length the object itself is observing as their real length.

    2. And if any two objects want to interact with each other, they're require to have a rather consistent if not fix ratio between their perspective during the time they're interacting[1]. Which means when two people are talking about the length of a thing, both of them can double they're unit length at same time. But one can't just change its unit length without noticing another, cause it'll make the conversation meaningless, even you two have a unit conversion equation at the very beginning, it'll be broken since you change your unit length without noticing others.

3. Last, the hypothesis has some basic preference on how the world should work, including:

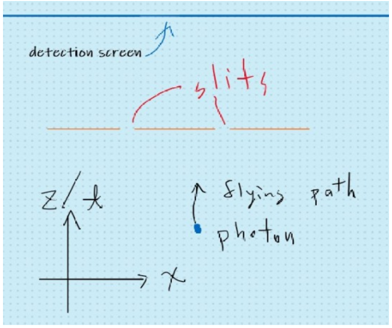
    1. Everything should be continuous

    2. All dimensions (parameters) are equal, including time, space, heat/temperature, etc. In following chapters, we'll be plotting (describing) 1-parameter per system (though the system is 3-D).

With these concepts in mind, we can try to explain why quantum phenomenons exists.

1 In following chapters, we're setting that when we interact with objects, they must have same perspective with us (N=0, A=1). Since unlike interacting with other humans, we have no way to know what perspective are they really in. So we just let their perspective when interacting with human, as same to our perspective.

Describing double-slit experiment (particle-wave duality)



Today, we'll be trying to explain two questions evolving double-slit experiment. One is why interference pattern appears if the particle only passes 1 slit. Second, how can observation causes the interference pattern disappear when you say they aren't waves.

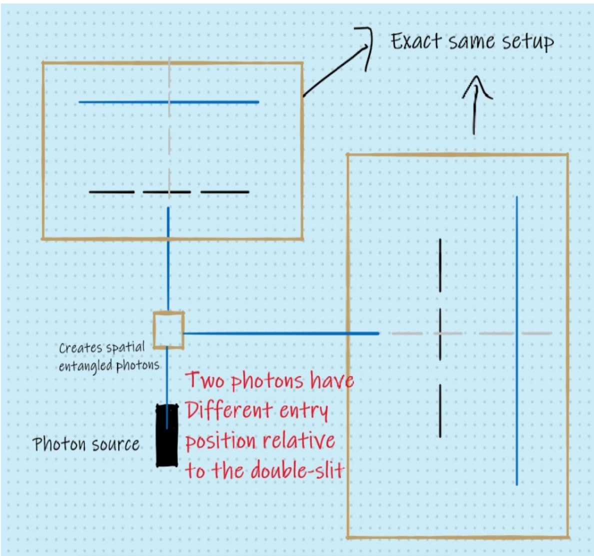
We'll be putting slits on x-Axis, and say that photons fly along the z-Axis, as the picture at right. By also supposing photons are traveling at a constant speed along z-Axis[2], we can concentrate our system on describing photons' movement along x-Axis.

Now, let's identify how each object is effecting the system:

1. The slit is constraining the movement along z-Axis. Although it seems like it's restricting movement along x-Axis, but if we suppose the slit itself is thin enough, a particle shall only either smashed on the barrier, or pass through the slit. So basically the slit isn't constraining the movement along x-Axis
2. The final projection wall also only constrains movement along z-Axis, with the same reason above.
3. Photon detectors that may be placed by the slits, are the only thing makes interaction on x-Axis. Since its usage is to detect the position of photon along the x-Axis.

So simplifying the things we've talked in previous page, it basically said that when a particle interacts with us (or detectors), its path makes sense under our perspective. On the opposite side, if it's not interacting with us, it could basically move on any possible path[3]. Which in this experiment means, when without the detectors, the photons could basically go any path they want, which should be the cause of the interference pattern result at the detection screen. But when any detectors is presented, photons are restricted to obey physics rules under our perspective, which makes the interference pattern disappear.

How might we even disprove wave-particle duality



There's actually 1 possible way we might be able to prove this hypothesis using double-double-slit experiment[4].

By making two spatial entangled photons, it means that if two photons enter two exact same double-slit setup at same position, they should end up at the same spot on the detection screen. Even you add detectors at slits, you should also detect them at the same detector.

2 They probably won't though, but even they won't, the path along z-Axis between photons should be the same, so still we won't be discussing them here.

3 Excluding the possibilities that'll cause division by 0.

4 Since we've make many assumption upon the hypothesis before we start describing double-slit experiment. This experiment will actually only disprove quantum mechanics randomness, instead of proving this hypothesis is right.

Now if we move one setup a little bit to the right, which makes two photons' entry point different. In quantum mechanics, we've explain double-slit experiment as particles passing through both slit at one time; Or using wave-particle duality, the particle is actually a wave at this case, which also passes through both slit and interfere with itself. With this explanation, it should mean that as long as both photons reaches to the detection screen (not blocked by the barrier), it won't matter if the entry point is different cause they do pass through both slit (no matter as wave or as in superposition) and interfered with itself.

So if we get the result that the photons doesn't actually land in same place, it will suggest that maybe something went wrong in Quantum Mechanics. For superposition, we might need to add additional parameter (entry point) to the superposition. For wave-particle duality, it'll basically be disproved, since you're passing through both slit as a **wave**.

Interpreting Quantum Randomness using the hypothesis

Previously, we've said how a parameter can be described using 3 variables. Now we've going to describe the changes of these 3 variables over time, by mapping them to a dynamic system's 3 axis. We suppose quantum objects might be able to describe using chaotic system, since by using chaotic system's property – *sensitive to initial condition* – we could easily explain the quantum randomness[5].

Now we'll be starting to use the variable ***E***. The value means the existence of other objects received by *the* object. It might be a more philosophical description, but basically it tells what things are the object is interacting with (or intractable). Which here we'll defined as if ***E<1***, the object can't interact with human, else it could. And if human tries to observe any object with ***E<1***, it'll force its ***E*** to rise up to 1.

So we think that the cause of quantum to have randomness, is because they have ***E*** lower than 1 (we have ***E=1***). If we model object's parameter (like spins) as a chaotic system (and let's take Lorenz system now for example) with their three variables ***P, N, A*** maps to three axis. Then let $\rho = \frac{24.74}{E}$. Since in Lorenz system ρ has to be larger than 24.74 in order to be chaotic, otherwise points will just evolves toward one of two fixed point, we can see why quantum randomness will only appear when ***E<1***. As only systems (qubits) that have ***E<1*** are sensitive to initial condition, so operation that'll cause randomness (qubit rotation) needs to be preform on system that satisfied the condition (when they aren't being observed). And whenever quantum objects are observed (***E*** raised to 1), the point in the system will evolves to a fixed point (collapse), and any operations applied when ***E>=1*** works like classical phyics.

5 Even though if considering this hypothesis is used as Theory of Everything, other non-quantum physics rules may be described using non-chaotic dynamic systems (or even like the double-slit discussed above), but since our topic here is quantum **randomness**, we'll just be saying chaotic system.

How might we be able to maintain local realism (unsure)

Bell’s inequality has been denying the possibility for a local realistic hidden variable theory to exists. But from what I learn, Bell’s inequality proofs that hidden variable theories require faster than light communication between two quantum entangled object in order to maintain the result observed from experiments. Meanwhile, the theorem looks great, but it seems that the experiments proofing Bell’s theorem is using the fact that they observed two entangled quantum object within a time range so that light won’t be able to reach another quantum object since it was observed. But if we take the thought of existence into this experiment and also that the world should be continuous, it’ll seem obvious that the quantum object should be able to know that the sensor is there, oriented in which direction, before they even being observed. Which gives some room for light speed communication be achievable.

Also we’ve said that when not under observe, quantum objects’ perspective may change, so even on their perspective they aren’t moving, in our perspective they might simply be moving. And that’s what happens when we plot the spatial position of the quantum object. What if we plot the time line of the quantum object? If time also follows these rule as all other parameters does, then it won’t be surprise if the time of quantum objects and the time of human beings are different. And not just like what relativity does, which only multiply the unit time, the time in this situation might be stretched or squashed randomly, which might also give more room for the communication to be possible.