

### **Distinguishing Concept from Reality**

Just the other day, one of my daughters came to me asking for help on her math. Her math class was just learning concepts such as the 'point', 'line', 'segment', and 'ray'. Though I wanted to go into a graduate level discussion of these topics, I found myself giving the most basic definitions beginning with 'a point':

"A point is a location which has no size", I expertly told her.

Then came the all too common response, "You mean a dot?"

"No, no, a dot is a round mark that has physical size...like a period. Whereas a point doesn't have any size," I adroitly stated.

To which she responded, "If it doesn't have any size then how can connecting a bunch of them form a segment? If something doesn't have an size, then a bunch of them, even a whole lot of them, can't have any size either. Zero plus zero, plus zero, and so on will still be zero. A segment has size, and a line has a whole lot of size if it goes on forever, so they can't be made up of points."

I was stuck. Out of the mouths of babes, comes the unadulterated truth. **A 'concept' can not be equated with a physical reality. Unfortunately, it is done routinely in physics. And it is wrong.**

A concept exists in the virtual universe of our minds with no physical equivalent. Concepts are our attempt to understand the physical. We often use the concept of a point to describe sub-atomic particles, but a particle, no matter how small has some physical dimension. Also in quantum mechanics we treat photons as a coherent point particle rather than a wave, and again the concept is inaccurately equated with the physical reality it is supposed to represent.\*

***A concept is not the same as the physical reality it is supposed to represent.***

Another great truth has been revealed, albeit via my daughter.

Dr. James P. Siepmann (and his daughter Jessica)

\* I would even go further and say that the equating of a photon with a point is inaccurate since a photon has mass, it is just that its density is just the same as that of [Space](#) giving it the appearance of being massless. It is like an object which appears to be weightless in water if it has the same density as water. To go even further, let's use the following logic:

- In order for something to exist in the physical universe, it must either have physical dimensions or have an effect on the physical universe (i.e. wave).
- A photon exists either as a particle or as a wave with an effect on Space.
- If a photon is a particle, then it has physical dimensions.
- Anything with physical dimensions has mass.
- If a photon is a wave then it has an effect on Space and therefore Space must physically exist.

**Conclusion:**

***Either a photon and/or Space physically exists.***

Since anything that physically exists has physical dimensions (size), then the equating of a photon with the concept of a point is wrong and will lead to erroneous conclusions if used as a premise.

[Journal Home Page](#)

Email comments/questions to: [mail@journaloftheoretics.com](mailto:mail@journaloftheoretics.com)