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Theoretics: The Future of Theory Development

Just as the scientific method helped to revolutionize the way that we approached science over the past centuries, it is also quite incomplete as a method for scientific advancement as I have described previously in these pages.[1] We have also had to clarify what is meant by Science.[1] But how does Theoretics (the field of study which utilizes creative thought, disciplined logic, and the current knowledgebase to develop credible scientific theory) play a role in Science.[2]

Theoretics can help us not only in the development of new and better theories but it can also help us in determining the validity of others' research and much more. With this last issue of the Journal of Theoretics, I would like to outline the key components of Theoretics:

1. The application of logic to theory development and validation. This includes the use of syllogisms which are propositions that if agreed to will necessarily lead to a specific conclusion. One example is in my proof that Space physically exists:

- A photon physically exists.
- If a photon physically exists, then it must have physical dimensions.
- Anything with physical dimensions must have mass.
- If a photon has mass but it can travel infinitely through the void/medium of 'space', then its density must be less than that of the medium in which it travels.
- Therefore space must have a density that is greater than that of light.
- Since something must have physical dimensions and mass in order to have density, then Space must have physical dimensions and mass.

If you agree to the above propositions then you have to agree that Space physically exists.

Another use of logic is in determining if a theory suffers from a fallacy. There are dozens of different types of fallacies and they can be sometimes hard to spot. Finding the fallacy often takes a bit of detective work. For instance, many organizations (e.g. AFL-CIO, AMWA) have touted the U.S. Department of Labor, Bureau of Labor Statistics studies as showing that there is a pay discrepancy between male and female physicians but when you take into account the number of hours put in (women worked less hours than men), seniority (older physicians are paid more than younger ones), and specialty (women chose lower paying specialties than men such as pediatrics, family practice, etc.), there was no pay discrepancy.

2. The use of good science in theory development. This can be a tough task. What can we use for the building blocks of our own theories? You can use what are called facts (that which is known to a virtual certainty) as well as that which has been demonstrated to probably be true (that which has been found to be valid to date).

3. Look for better theories. Just because a theory is valid to date, does not make it true. It was only a few centuries ago that it was thought that the Earth was the center of the universe and for the most part the evidence seemed to validate the theory. But as man looked at it from a more detailed perspective and developed better tools, it was found to be invalid.

Take gravity for a current example. Currently it is thought that gravity waves "pull" objects together but a theory that makes more sense and explains gravity better is that of Space density where Space physically exists and is displaced by matter thus causing a pressure around the mass.[3,4]

Finally, remember Ockham's Razor. It is the doctrine "Pluralitas non est ponenda sine necessitate," which translates "Plurality should not be assumed without necessity," or in today's lingo, "The simplest explanation is more likely to be correct." A variation of this is "a theory without exceptions is more likely to be true than one with exceptions".

4. Effective communication is critical. If a person can not communicate effectively then the best theory in the world could be rendered useless. Scientists must agree on the definitions of the words that they are using and use them correctly.[5] I have seen scientists disagree at length only to later find out that they were actually in full agreement, they were just using different definitions for a single word. Just think of the word "space"; is it nothingness, a vacuum, spacetime, an aether, a physical entity with innate characteristics, or something else?

As editor of the Journal of Theoretics, I have received some articles that were not arranged in a logical manner and therefore the reader could not understand what the author was trying to communicate. I have also received articles from around the world where the article suffered because the author was not proficient in English. Where other journals would not take the time to look at these articles in-depth, we took the time to work with the authors in rebuilding and refining their articles so that they could communicate their theories effectively.

5. Theory is just as important as experimentation (if not more so). Science can not progress without theory. Hence Theoretics.[2] All too often the theories in today's scientific journals are usually single hypothesis studies and not broader theories which can bring about a revolution of thought and understanding. Theory development is not easy and is often quite complex and intricate, with experimentalists rarely making good theoreticians and visa versa. Theoreticians usually possess a more creative and unbound mind (e.g. Einstein) while the experimentalist maintains a more meticulous and practical mindset (e.g. Edison). Rarely are the creative theoretical mind and the meticulous experimental mind contained within the same skull.

Dr. Siepmann, Editor
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