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Evolution

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Writing Assignment 2

We scientists subscribe to reductionist belief, where we believe that all activity in the universe is governed by the same fundamental laws, with exceptions only in extreme circumstance. Thus, only scientists who deal directly with the fundamental laws are doing any fundamental science. This paper was written to oppose that.

There are issues with thinking only sciences directly dealing with the fundamental laws are fundamental. The first being the distinction between intensive and extensive research. Intensive research deals with discovering fundamental laws whereas extensive research deals with application of these fundamental laws to explain natural phenomena. However, there is also the issue of how properties of particles change with scale and complexity. Each new time either of those are changed, the properties of the involved particles also change. This means that no science is just an applied form of a more intensive science. However, the author of this paper still holds a reductionist view.

The dipole moment of the ammonia molecule in contrast with nuclear physics' belief in there being no dipole moment bore a confusion in the author. However, this rule of no dipole moment only applies to static molecules, with ammonia actually having inversions caused by its asymmetry, making it not static. This is an oversimplification of how fundamental laws can change depending on complexity. Sugar molecules break the laws of symmetry with their

spiraling. Besides these, there are other instances where extensive research changes the fundamentals of how we view certain aspects of our reality.

The nucleus was originally thought to be a static ball. It is not. This is largely known because we know of the multi-particle complexity of the nucleus. Another structure whose complexity defies our reason is the crystal, where it does not have to follow the symmetry we assume would apply to it.

It can also be expected that at the microscopic scale some equations for motion and symmetries will appear to be violated. Though through extensive research we have come to understand a lot of these apparent and literal violations, there is still a lot to be learned such as those concerning amorphous phases.

However, an obvious example of what to study next is DNA for its “readability”. It also seems to have temporal regularity. We must begin studying more complex sciences where we will go up the hierarchy of the sciences while still addressing fundamental questions. These answers can also be applied to seemingly unrelated scientific fields: biological discoveries can be applied to the development of computers.

Effectively, there are a lot of differences among the sciences, but also many similarities. Their relatedness is also substantial enough they ought to work together.