

In the field of physics we fairly well know what fundamental interactions (forces) do but we cannot know what they are or where they come from: caught between philosophy and theory

Bruce A. Lutgen

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lutchba@gmail.com

Mathematics is a precise effective method of communication that is used in science as well as everyday life. Beside mathematics being a means of communication, words are also an exacting means of communication. Each of these means of communication relies on symbols for their existence. Each of these means of relating information requires extensive study to be mastered and each of these is limited by true to type society-imposed rules of usage. These conventions have been developed over the millennia and are so well accepted that they in a way tie our hands. With that, there is the unresolved difficulty in defining fundamental interactions by what they are while using the only two tools at our disposal.

Fundamental interactions, as the name implies, are basic in form and ostensibly exist in a way that is foreign to us. The fundamental interactions are vague in that they are seemingly physically dimensionless and rather ghost-like. Fundamental interactions can imaginably cross space and time dimensions because of a curious fluidity\*. Such forces might not have fixed boundaries but can abide by boundaries. In quantum physics, fundamental interactions are there that cannot be seen or directly measured, such as the interactive forces between quarks or electrons and protons. Since we draw a blank in attempting to describe what they are, the so-called fundamental interactions can only be defined by what they do. (If you think about it, language is full of conundrums like this.) Unfortunately this limitation is inherent within us. Within our own limitations and the limitations of the communicative and descriptive tools we have at our disposal, it is likely that we will never be able to characterize such interactive forces outside of describing what they do.

We know what fundamental interactions do. Their abilities have been well described and quantified. We cannot say, with either mathematics or words, what such forces are. With that, *it is suggested that we need to halt fruitlessly trying to define exactly what they are while refraining from inserting the physical (particle) equivalents of free parameters into our fundamental interaction thinking.* Inserting such equivalents is tantamount to kicking the can down the road in that we create a new set of potentially unanswerable questions. Accepting the fundamental interactions for what they do, if not for what they are, can work well enough for us.

Dimensions beyond the one's we are familiar with in our everyday world are difficult for us to wrap our minds around. Indefinable fundamental interactions that reside within a dimension or

perhaps transition from possible other but indefinable dimensions do what they do in maintaining the cohesiveness of atomic structures. Therefore, fundamental interactions are no less than well labeled, no matter how we try to define them other than by what they do.

\* Fundamental interactions had their beginnings during the time of the big bang. Concentrated fundamental interactions are in play wherever there are atomic structures. With great consequence, without these crucial interactions we would not have microstructures, at least as we know them. Is it then possible that so-called dark energy and dark matter were and are interconnected to form an essential conduit for the propagation of these fundamental interactions?

### Bibliography

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