

Myths and Physics—a Myth is as good as a Smile!

Albert Einstein discovered Special Relativity in 1905: he hypothesized that there is a limiting velocity, that of light. His theory led to many predictions, every one of which has proven true when testable, and if tested.

In 1908, Hermann Minkowski recast Special Relativity as being nothing more than a simple extension of the Pythagorean theorem to now include time as a fourth dimension, only distinguished from the other 3 dimensions by a minus sign.

So who is **right**, Minkowski or Einstein? Einstein, for a year at least, rejected Minkowski's claim. Had Einstein stuck to his guns, he could not have discovered General Relativity: his greatest discovery.

The Special Relativity mathematics of Minkowski, and the Special Relativity mathematics of Einstein, are identical intrinsically—they are merely different displays of the **same** mathematics. One could correctly claim that Minkowski discovered nothing **at all**.

So is there any objective point in using words **at all** in describing the universe? Do we actually understand anything better when we find ourselves able to attach attractive words to equations? What does **understand** mean?

I certainly feel happier with Minkowski than with Einstein. With Minkowski, I feel that I am actually in contact with the basic structure of the universe, and I am thrilled with its simplicity, and its accessibility to us, and to me in particular.

Which brings us to the mass of the electron. Which is small compared with that of a proton: But, NOT compared with any quark, up or down. (Almost all of a proton's "mass" is merely the kinetic energy of its gluons.)

If the electron's mass were just **four** times greater than it actually is, all electrons would have combined with protons to make neutrons, and there would be no life in the universe anywhere. Astrophysics would.....who cares?

When a sufficiently energetic photon flies past an atomic nucleus (giving it somewhere to dump momentum), it, with some probability vanishes, its place taken by: an electron – positron pair.

The biggest unanswered question in all of physics is ... how does the universe know **what mass** to give to that electron (and of course also to the positron).

If I knew that, I would be a happier person.

I don't.

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