

# How the Epicureans might have predicted Lorentz time dilation

**Post by “jblackmon” of December 16, 2025 at 8:58 AM**

Thank you, Cassius and Eikadistes. I love this quote of Einstein's which I did not know about.

I grasped the idea when I was taking Philosophy of Space and Time taught by Jeff Barrett at UCI back in the 20th century. As an English student at the time, I did not have the training to share the idea with STEM people who weren't willing to be patient or imaginative. Fortunately, some were, and I pursued it. At one point, I became convinced that the idea conflicted with our empirical data, so I reluctantly abandoned it for many years. I later realized I was wrong. (Thank you, Internet.) The idea, so far as I can tell (and based on communication with physicists, some of whom are experts in relativity), does not contradict our empirical knowledge--and it better not, because it's a theorem of kinematics.

The idea is that if the most fundamental parts of composite systems must all move (in some frame R) constantly at some speed  $s$ , then the greater that composite system's speed is (in R), the slower its parts can move relative to each other, and thus the slower it can change state--the slower it can age or evolve. (I can address why we should take the IF part seriously in another post.) I call such systems isotacheian, and it's simply a theorem of kinematics that isotacheian systems exhibit what we call time dilation in accordance with the Lorentz transformation (which has a simple Pythagorean form that is rarely seen for some reason).

One intuitive way to see this is to imagine a fleet of cars that all must always drive at say 50 mph. The fleet is an isotacheian system. If the fleet is to stay local, then each car must drive in tight loops. That fleet will typically be vacillating as its parts (cars) move relative to each other, but it as a composite system won't wander off. If instead the fleet is to travel somewhere, then the cars must devote more of their motion to moving in the same direction. Now the fastest this fleet can go is 50 mph, in which case the cars cannot move relative to each other at all. They will all be driving along parallel paths at 50 mph and so not getting closer to or farther from each other. The fleet then as a composite system will not be changing, though it will be in motion. Between these two limits for the speed of this fleet (0 mph and 50 mph) are other speeds and their corresponding rates of change. The relation is Lorentzian. The same holds for an isotacheian swarm of bees, school of fish, physical object composed of Epicurean atoms, or physical object composed of fundamental point particles.

I think special relativity doesn't have to be cloaked in mysterious abstractions and sophisticated math. An Epicurean could have worked this out using only the Pythagorean theorem. Honestly, I wouldn't be surprised to learn that one of them did.