

Why the Constancy of the Speed of Light
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According to relativity theory, the speed of light is constant in all inertial reference frames. This is a simple fact of science, easy to state and easy to remember. Its scientific implications, however, are enormous. What is more, from a commonsensical point of view, it makes no sense. Here is how David Mermin takes up the question: “How can this be? How can there be a speed c with the property that if something moves with speed c , then it must have the speed c in any inertial frame of reference? This fact—known as the *constancy of the speed of light*—is highly counterintuitive. Indeed, ‘counterintuitive’ is too weak a word. It seems downright impossible.”¹

I propose that this constancy denotes our inevitable involvement in nature. It marks the mutual interpenetration of mind and matter; it is a place—an interface—where these two entities dissolve into one another. We cannot, consequently, overtake it—alter that constancy—as we overtake things less familiar or intimate. If we were interlopers in the cosmos, perhaps we could overtake every aspect of nature in a clear and objective way. Since we aren’t, however, certain complicities or intertwinings work against our objective apprehension of the world. Light shows up in such places, at the horizon or interface of physical and perceptual reality, and this is why it is anomalous. More to the point, light speed constancy is a consequence of the fact that upon measuring the speed of light, we are already complicit with light. We are already incorporated into a cosmos whose definitional structure, or some aspect thereof, cashes out as the speed of light.

¹ N. David Mermin, *It’s About Time: Understanding Einstein’s Relativity* (Princeton, NJ: Princeton University Press, 2005), p. 25.