

Light on the Special Theory of Relativity

George Bate in his article, "A Conceptual Key for Deeper Insights into Continuous Causation of the Reality Flow of the Universe" (*PSCF* 56, no. 2 [2004]: 89–101), shows a lack of understanding of the special theory of relativity. In the section "Probing Century-Old Mysteries," he questions the simple logic that the speed of light is the same for all sources and observers, regardless of their motion. I suspect that this is illogical for him because he is trying to hold onto a Newtonian view of time. His introduction of a medium or ether with the purpose of solving this so-called mystery would destroy the beauty, elegance, and simplicity of special relativity.

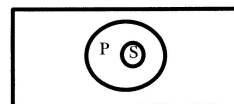
Let me explain several features about the speed of light. It is a fundamental constant, which relates time to space. Time is not independent of space. Specifically a twin, who travels round-trip through space, away and back again to his or her sibling, will age less than the sibling who did not accelerate. Secondly, the speed of light is in some sense an infinite speed. Specifically, I can move myself to any far object in the universe and not age even one second, if I am traveling at the speed of light. The reason the speed of light is a finite number is because space and time are dependent on each other and we measure distance traveled and elapsed time from a single inertial frame of reference. In any inertial frame, there will necessarily be either time dilation (the reference frame clocks run faster than any moving clock in its frame) or spatial contraction (distance between two objects is reduced in an inertial frame moving along the line connecting the objects). This means that observed motion in a single inertial frame must have either the distance shortened or the time prolonged. The factor by which time (distance) changes approaches infinity (zero), respectively as the velocity approaches the speed of light, c . Remember that speed is distance/time. Without either the time dilation factor or the spatial contraction factor the speed of light would be infinite, but with either of these factors the speed becomes finite. The only mystery is why it has its specific value. This is one of the fundamental constants of nature. Assuming God fine-tuned all of the fundamental constants, the teleological interpretation of the anthropic principle explains its value. A much different value would not allow us to exist, because the space-time metric would be different.

William R. Wharton
ASA Member
Physics Department
Wheaton College
Wheaton, IL 60187
William.R.Warton@wheaton.edu

Some Confused Diagrams and Laws

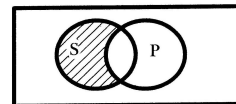
Professor Kišš, in "Venn's Diagrams in Mathematics and Its Application to Theological Ethics" (*PSCF* 56, no. 2 [2004]: 126–30), mislabels his diagram. Venn diagrams require overlapping circles or ellipses, parts of which may be shaded. His figure is an Euler diagram, named after the noted mathematician Leonhard Euler, a century senior to logician John Venn. However, the circles were already used a century earlier than Euler's presentation. Whatever the labeling, this type of diagram has pedagogical benefits.

Euler circles

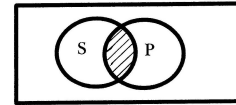
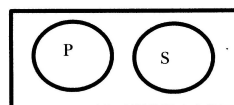


Venn diagram

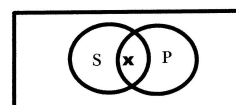
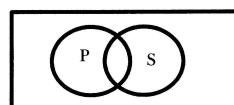
All S is P.



No S is P.



Some S is P.



Unfortunately, Kišš confuses matters thoroughly by introducing "*lex amoralis*" to include "murder, rape, and pedophilia" (p. 130). First, *amoralis* is not the standard Latin term for such acts. They are immoral, *immoralis*, using the proper Latin negative particle *in-*, which becomes *im-* before *m*. "Amoral," according to the *Oxford English Dictionary*, was coined about 1880, using the Greek alpha privative. The word normally specifies something that cannot be evaluated morally, like having hot or cold cereal for breakfast. This is not what Kišš intends. Beyond this, coupling the term to *lex* is nonsense. What law, rule, principle, standard promotes murder, rape or pedophilia? Such acts are clearly prohibited by natural law, implicit human law, statute law. Were I classifying such acts using New Testament language, I would label them *anomia*, lawlessness, rather than *hamartia*, missing the mark. Perhaps what Kišš intends is a classification of human actions under various attitudes. This suggestion also fits what he says about cheating under *lex gentium* (p. 130). I know of no "law" that promotes cheating. It is a matter of student mores in spite of official prohibitions.

A point favorable to Kišš's broad use of *lex* is that neither it nor *jus* demand enactment by a legislature. *Lex naturalis* is understood as the law written in the heart, to which conscience reacts—when it is not seared. It is held to be identical to *lex moralis*, except that the latter is given by revelation.

David F. Siemens, Jr.
ASA Fellow
2703 E. Kenwood St.
Mesa, AZ 85213
dfsiemensjr@juno.com

Erratum

In the letter, "Mature Creation" (*PSCF* 56, no. 2 [2004]: 155), the last sentence of the first paragraph should have read: "This criticism, however, presupposes that God could [not: "would"] have made a young universe without the appearance of age." We are sorry for the error.