

Noesis

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EDITORIAL

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IN THIS (THE HANNON BACKLASH) ISSUE EDITORIAL STUFF

LETTER FROM ROBERT HANNON

LETTERS FROM RON HOEFLIN

FRED VAUGHAN ON THE LORENTZ TRANSFORMATION

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MORE ON CRACKPOTS AND SPECIAL RELATIVITY

LETTER TO BOB FROM CHRIS LANGAN

LETTER AND PUZZLES FROM PETE POMFRIT

Most of you know that a few months ago, a guy announced a proof to Fermat's Last Theorem which satisfied lots of knowledgeable people. In February's issue, I ran Kurlaw's counterexample to Fermat's Last. This was just to see if anyone was paying attention, and Steve Sweeney was. He called to say he tried out the numbers on his computer, "and they were way off." How far off, I don't know, since my computer skills are barely competent to do word processing.

I was lying in the tub, soothing my hemorrhoids and thinking about the structure of the universe, when a family of problems came to me. Here's a representative:

Four points are chosen at random within a sphere. (By random, I mean the obvious--that each unit volume within the sphere has the same probability of containing a point.) What is the probability that the tetrahedron with a vertex at each random point contains the center point of the sphere?

Try it with $n + 1$ random points within an n -sphere. Try it with any shape such that has 180 degrees of rotational symmetry. Lemme know if you've seen this problem elsewhere.

ROBERT J. HANNON
4 Mar 94

4473 Staghorn Lane

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Rick Rosner, Editor
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Dear Rick,

I am honored that you devoted an entire issue of NOESIS to my writings, and that you have published so many of my contributions.

As surmised by Chris Cole, I do want others to respond to my views and ideas. I am disappointed that I receive very little response. I always welcome objective, scholarly criticism; that is my best source of new or better ideas, and corrections of my errors. I agree with Chris that it is not healthy that so much space be given to one author. Unless you want me to do otherwise, for a while I will restrict my contributions to letters commenting on the ideas of others or in reply to comments on my contributions.

I have responded personally to Chris's reply in NOESIS 88. He may want to publish the questions I posed to him, and his replies; that is up to him.

Enclosed is my check for \$20.00 to extend my subscription.

Best regards,



Robert J. Hannon

March 2, 1994

Ronald K. Hoeflin, Ph.D.
P. O. Box 539
New York, NY 10101

Dear Rick:

In response to Noesis #88, thank you for publishing the names of Mega Society members. You asked for corrections, if any. I have only two possible questions. First, if Marilyn vos Savant is still a subscriber, then she should be on the list. I gather that she no longer subscribes, which would explain her omission. I also wonder if "A. Palmer" should be on the list. Such a person attempted my Mega Test numerous times, each time altering his name and address slightly. When I finally noticed the numerous attempts and asked him to try some other test instead, such as my Titan Test, he had not, to my knowledge, reached a qualifying score. So if this is the same guy, then he should not be listed as a full member unless I'm in error somehow. He's welcome to correspond with me about this if he wishes or to try my Titan Test.

One of my main reasons for desiring a listing of members was to alert people to the fact that Mr. Hannon is not a member of the Mega Society. I feel that his material lends a crackpot tinge to our journal which is not likely to encourage the truly gifted to feel comfortable joining such a group. His remarks at the end of issue 90, for example, are bizarre, even for someone who, like myself, has only an undergraduate level knowledge of physics. He asserts, for example, that "A small constant acceleration of propagation of light in a vacuum (C) will yield the observed cosmological redshift." But acceleration would correspond to a blue shift, not a red shift, since the photons are moving faster and faster towards us compared to their velocity at their starting points. Also, I wonder how Hannon would explain the difference in red shift between the two sides of a rotating galaxy that is seen from the edge. The side of the galaxy that is rotating towards us has an observable blue shift compared to the side of the galaxy that is rotating away from us, which is systematically redder than the other side of the galaxy even though both sides are at the same average distance from the Earth. The Doppler effect accounts for this astronomically observable phenomenon, whereas I do not see that Hannon's explanation can do so.

As for Kevin Schwartz's letter in issue 88, I agree with his criticism of Marilyn's remarks opposing the recent proposed solution to Fermat's Last Theorem.

As for his assertion that "mainstream science texts don't even footnotes [sic] past or present Megarians," there is the fact that Chris Cole is mentioned in the book Who Got Einstein's Office, although I doubt if that is what Mr. Schwartz has in mind by a "mainstream science text." Publishing the flood of crackpot junk from Mr. Hannon certainly won't encourage mainstream science types to join us, unless they have a rather large sense of the absurd and the ridiculous and can enjoy the offbeat for its own peculiar idiosyncrasies. As for other people who qualified but did not join, they include at least one or two reputable scientists. My own view is that if we persevere in keeping our standards of admission high and the quality of our journal likewise, then in a hundred or a thousand years this will have become a highly respected society, if it can survive that long.

Noesis Number 92 April 1994 page 2, 3

Ron Hoeflin

Concerning The Lorentz Transformation

By Fred Vaughan

Robert Hannon, in "Completing the Lorentz Transform" (*Gift of Fire* #62, September 1993) criticizes the Special theory of Relativity (SR), an endeavor I certainly can not condemn, as I have from time to time taken (and will continue to take) great pleasure in doing the same thing. See, for example, my *With All Due Regard for Experimental Evidence of Time Dilation* [to be printed in a future issue—*ed.*] and *Special Relativity, an Experimental Error* published in the *Gift of Fire* #31. So while lauding Robert's efforts, I have a few comments which negate the validity of his claim to having "completed" the Lorentz Transformation (LT). I think the journal should continue to publish articles like Robert's, but it would be remiss if it did not document rebuttals. Some of the more serious problems with Robert's arguments are the following:

1) The Lorentz Transformation (LT) transforms *events*, i. e., points (x, y, z, t) in a presumed four dimensional space/time continuum, observed by an observer in one Lorentz reference frame, or "inertial reference frame (RF)" in Robert's nomenclature, into an event (x', y', z', t') that could be observed in another (relatively moving) RF. Notice that it does NOT transform *lengths* (or distances) and *time intervals*

directly as Robert states that it does. Lengths and time intervals must be determined by applying the LT to each of two "simultaneous" events which define the extremities of a space-time interval in each RF. If one of the separated events happens to be situated at the origin in one of the RFs, the difference between the spatial coordinate value and spatial distance between the two events can be confusing to a novice, particularly if he considers only events in the four plane, $(x, 0, 0, t)$, as Robert implicitly has by ignoring the two remaining LT equations, i. e., $y' = y$ and $z' = z$.

Spatial length and time interval are given as one would expect by the definitions:

$$\delta = \sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2]}$$

$$\tau = t_2 - t_1$$

where the subscripts designate the spatiotemporal coordinates of corresponding end point events [the same events for each observer according to Einstein's "third" obscure postulate] which can be observed to occur by coincident observers independent of their RF. The more fundamental space-time interval, Δs , (the distance between two events in four space) is given by:

$$\Delta s^2 = \delta^2 - c^2\tau^2$$

Distances, according to the SR (as interpreted in accordance with the "third" postulate) really are contracted when one does the algebra! Paradoxically, each observer obtains a value for the other observer's measured distance which is less than his

own, i. e., $\delta' < \delta$ according to one, $\delta < \delta'$ according to the other. And clock time in the other RF really does end up being dilated according to the algebra if one accepts the "third" postulate.

Robert's implicit assumption that a set of transformation equations must be solved for a single parameter to be "complete" (like a set of four simultaneous equations with only four unknowns) does not make sense. A transformation takes one set of parameters and yields another set, not a single parameter! The object is coordinate "coordination!" Robert's "completion" approach is like one observer saying, "I see the ship directly to my south at a distance of a mile and a half," while another observer placed to collaborate the measurement from a different perspective says, "No, the ship is proceeding at 10 knots. His algebraic operations have missed the intent of the LT. The four LT equations are a complete set appropriate to coordination in four dimensions.

2) The velocity transformation is not properly obtained by dividing one equation by another as Robert has done even if it happens to produce the correct answer in a particular case. Let us write

$$(x', y', z', t) = L_v(x, y, z, t)$$

to indicate symbolically the result of the operations of having substituted the coordinates of an event in one frame into the four LT equations to obtain the corresponding values for an observer moving at the velocity v relative to the first. Then the velocity transformation equation can be obtained as the value of the velocity v which satisfies the equation:

$$(x'', y'', z'', t'') = L_{v'}(L_v(x, y, z, t)) = L_{v'}(x, y, z, t)$$

which skips the representation (x', y', z', t') . In this case there are three relatively mov-

ing observers whose observations are, respectively, unprimed, primed and double-primed. L_v transforms events observed by a first observer into those of a second, and a second transformation, $L_{v'}$ transforms from the second to the third observer and $L_{v''}$ from the first observer directly to the third. All these transformations are self consistent and so satisfy Einstein's first postulate if $v'' = (v + v') / (1 + vv'/C^2)$. There are no additional restrictions (with or without the "third" postulate mentioned above and elsewhere) as Robert suggested because of his improper derivation. And yes, one can readily see that v'' can never exceed C even if v and v' each approach C .

3) One cannot legitimately conclude that the supposed confirmations of SR are just "invalid" without some sort of apology? I am left wondering whether Robert believes the experimental results are hoaxes? They certainly are not! The scientific community may shun those who doubt their paradigms but they do not conspire in directly criminal ways to fake the data to justify unsound theories. Their experimental results are inherently reproducible and have typically been reproduced many times under various conditions and scrutiny. One must address each scientifically, explaining how the experiment should be performed or how its results should be interpreted so as to bring that invaluable data into agreement with one's alternative proposal.

"A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."

—Max Planck

MORE ON CRACKPOTS AND SPECIAL RELATIVITY

The following first appeared on the Usenet News. It is reprinted here with the permission of the author. Don't bother sending him your refutations of Relativity; he has promised not to read them.

A Checklist for Crackpots

So you think you have found an alternative to the Special Theory of Relativity? Before you start pestering the rest of the world with your new "theory", how about applying a few elementary checks to see if it makes sense.

1) Are Maxwell's equations the same in a frame moving with velocity v as they are at rest?

The REASON that Special Relativity was invented in the first place is that Lorentz transformations leave Maxwell's equations invariant (whereas "Galilean transformations": $x' = x + vt$, $t' = t$, do not).

2) If Maxwell's equations are NOT the same in a moving frame in your "theory", suggest an experiment to detect the violation of Maxwell's equations in a moving frame.

Note that this experiment has probably ALREADY been done. Of course, there's the famous Michaelson-Morley experiment. And the fact that particle accelerators work as designed proves that charged particles accelerated to near the speed of light obey the Lorentz Force Law, emit synchrotron radiation, etc, PRECISELY as predicted by Special Relativity + Maxwell.

3) On to Quantum Mechanics. Compute the Fine Structure of Hydrogen (ie, the relativistic corrections to the Bohr-Balmer formula for the energy levels) in your "theory". Do your results agree with Experiment? EXTRA CREDIT: Compute the Hyperfine Structure and the Lamb Shift; compare with experiment.

These are all very well-measured numbers; the 21 cm line, the most famous feature in all of Radio Astronomy, is due to the hyperfine splitting of the ground state of hydrogen.

4) General Relativity. Are you going to junk this theory too? If so, calculate the precession of Mercury's perihelion in your "theory". Calculate the time dilation in the Earth's gravitational field and compare with the Pound-Rebka experiment.

EXTRA CREDIT: Do the same for the other classical tests of GR. And while you're at it, explain the Taylor-Hulse measurements of the binary pulsar (for which they received the Nobel Prize this year).

5) Quantum Field Theory. If you're going to junk Special Relativity, you're going to have to modify this too. When you've found your alternative to QFT, try your hand at calculating the anomalous magnetic moment of the electron. This has been measured to 10 DECIMAL PLACES and agrees perfectly with theory. I'd be surprised if you came even close.

Et cetera. The list goes ON AND ON, but by now you get the idea. There is a lot that you need to explain if you think Special Relativity is wrong. Detailed, quantitative predictions of well-measured phenomena which HAVE TO COME OUT RIGHT if your "theory" is to have a prayer. It's no good if you get some of these things right, but not others. They all have to work. Stop blathering and start calculating!

Mike Price

price@price.demon.co.uk

February 07, 1994

Dear Bob:

LETTER TO BOB FROM CHRIS LANGAN

I received your letter dated 1/11/94. Since I've plainly overtaxed your comprehension of certain crucial aspects of logic and mathematics, it occurs to me that you might appreciate one last chance to interdict what you'd probably call "an inevitable chain of cause and effect determined at the moment time began".


In *Noesis* 87, the Mega Society Mascot Jojo Einstein warned that he would take a dim view of anything but your best-reasoned response to my hard-edged algebraic criticisms of your work. Unfortunately, your letter fails to adequately address a single one of them. In fact, some bizarre mental hiatus has apparently let you assert that I "proved nothing"! That doesn't even rate a postage stamp, let alone excuse a gaggle of glaring, Bob Hannon-style SNAFUs.

Even if I were personally willing to suffer this denial of reality on behalf of your pride, Jojo remains a clown of his word and will do exactly as promised if your letter is published in *Noesis*. His fictional status notwithstanding, he feels that his reputation is at stake and is determined not to disappoint his many fans. As I have repeatedly tried to engage you in serious dialogue and can take no pleasure in your prospective humiliation, I therefore urge you to either bury your letter, or tell the current editor to kill it. Either way, you must notify me of your intentions to affect my (and Jojo's) decision.

If not, you may rely upon Jojo to mock and dishonor your thesis on various mathematical and comedic grounds, thereby serving notice that your privileges as a contributor are in danger of rescission. I sense a growing consensus on this, and since the Mega Society, for which you have not qualified, is nominally a democratic organization, Rick - who pulls no more weight than I do - is not really in a position to unilaterally advance your cause (even if he wants to, which he probably doesn't). Thus, if I (and/or others) decide to make an issue out of your participation, you cannot reasonably expect him to throw his lot in with yours. So please don't try to "play politics" here. Since you don't even belong to the group, any idea that you could prevail over one or more of its contributing members is at best misbegotten. While censorship would be undeniably tragic, so is the crying need you've created for it (next to your repetitious anti-relativistic stutterings, it looks ever more like the lesser of two evils).

Thank you for the copy of Einstein's paper. I do not see that its content, with which I was already familiar, helps you one iota. If you wish to submit another, unprecedentedly sound response, that tentatively remains your option (send me a preprint so I'll know how to proceed). But if you do, remember to "walk on eggs", mathematically speaking. I've become exquisitely sensitized to the kind and quantity of mistakes that characterize your previous work, and am low on patience. Since I use *Noesis* as a showcase for some of my own ideas, I can't let it become a crank-operated bullhorn for unregenerate hawkers of cracked pottery (or the merely pig-headed).

I know this seems to put you between a rock and a hard place. But even so, I'm doing you a favor I don't have to do for you, particularly in view of the way you routinely duck, dodge, and disregard my criticisms. I'm asking you for nothing I don't habitually ask of myself. Even if SR is not the "final answer", you'd have to *understand* it before you could improve on it. I acknowledge your claim to have studied it for "4+ years", and can well understand your resistance to anything that makes your efforts seem a waste of time. But relativity - which I helped to place on solid logical ground in *Noesis* 87 - is a big lesson to learn, and if you come out of this with any real comprehension of it, your time will have been well-spent after all.

Sincerely, 
Chris Langan

[P.S.:

A final hint to help you understand the futility of your position. Reread the second paragraph on the second page of Einstein's paper (the page marked "38"). It's crystal clear that Einstein considered electromagnetics a subdivision of *kinematics*, subject to all of its rules and constraints. One of these constraints is that light cannot be treated as a phenomenon unto itself, but is, to the extent of its kinematic relationships, on essentially the same footing as "rigid bodies" like observers. By stating this explicitly at the outset, Einstein was telling you in no uncertain terms how he intended to use the rules of algebra to derive and apply the LT. Thus, even if the initial implications of " $x/t = c = x'/t'$ " are that "the LT applies only to light" (call this the first or "derivational" stage of Einstein's reasoning), the kinematic relatedness of electromagnetic phenomena then compels its application to all physical objects and disturbances (call this the second, applicative/model-theoretic stage). I.e., because Einstein used the *kinematic limit* (c) to "derive" the LT, the LT perforce has full kinematic scope; where a limit is general with respect to that which it limits, the implications "derived" from it are also general. Not understanding this, you chose to ignore the second, model-theoretic stage of Einstein's reasoning, and thus to ignore the criteria by which variously-derived mathematical rules are applied in physics (if you had wanted to prove the second stage "inconsistent" with the first, LT *group structure* alone would have prevented you from doing so on a purely "derivational" first-stage basis). A schoolboy, whose lessons in rudimentary algebra precede any formal study of model or group theory, need not be taught this distinction. But if he wants to mix it up with the bigger, smarter boys, he must buckle down and learn it.

Yes, I know...nobody, but nobody, is smarter than you, and no one (especially me) knows more about logic, mathematics, or physics than you do. But if your letter appears in *Noesis*, I'm assigning Jojo to your case, and advising you of this is all the salve my conscience will require. Trust me, Bob - the Mega Society would love to see Jojo make an ice cream sundae out of you and cap you off with a maraschino cherry. But just between you and me, I hope you'll spare us both the trouble. I'm very busy right now with some important mathematical theorems, and I still think you have the brains to redeem yourself...provided you can relax your mental aperture enough to let a little light in. Very Sincerely, CML]

LETTER AND PUZZLES FROM PETE POMFRIT

Dear Rick,

Please find enclosed part of a set of 50 questions that I compiled. However, I have decided to stick to VERBAL ANALOGIES only for my new test so feel free to use any or all of them in the 'new' test.

I will send you (and Dr. Hoeflin for possible publication in *In-Genius*) when I have made my final selection of 48. These will include some of the questions that you have already printed in *Noesis*--this does not stop you from using any of them for the 'new' test.

Best Wishes,
Pete

I. Find the missing integer

	6	8	28
9	18	27	
15	36	63	
36	108	?	
42	143	433	

II. A goat is tethered to a point on the circumference of a circular shed by a rope whose length is equal to the perimeter (p) of the shed. If the goat walks around the shed, always keeping the rope taut, how far does it walk? Give answer in terms of p .

III. A goat is tethered to a post by a rope. The post is situated at the mid-point of one of the sides of a 10m by 10m square grass-garden. Determine the goat's radius of action when the grass within its reach is exactly one-half of the area of the garden. Give the answer to five decimal places.

IV. Using the KNIGHT-MOVE (from chess), find the maximum number of squares that can be visited (once only) in a four by four square so that you can return to the starting square AND determine how many different arrangements are possible. For example: in a three by three square we have eight squares visited and two arrangements.

ORION-TEST

SEND ANSWERS TO: P.A. POMFRIT 22, MOAT HALL AVE, PEEL GREEN, ECCLES, MANCHESTER, M30 7LR, ENGLAND.

PLEASE PREVIOUS (AND TESTS) GIVE IQ'S

VERBAL ANALOGIES

RAW SCORE: BY RETURN POST: I WOULD APPRECIATE \$2 (CASH) FOR EXPENSES

1. NEMO: NAUTILUS :: AHAB: ?	26. THE CUNCTATOR: FABIANUS :: THE CENSOR: ?
2. 30: 35 :: PEARL: ?	27. UNIPOLAR: ANION OR CATION :: DIPOLAR: ?
3. INITIALS: NAME :: MONOGRAM: ?	28. 3 TO 2 :: 5 TO 2 :: SESQUIALTEARAL: ?
4. 10: 11 :: JUDAH: ?	29. EXCISION OF PAPER: PERFORATING :: SLITTING OF PAPER: ?
5. PERSON: PASSPORT :: CAR: ?	30. LETTER: SERIF :: SIGNATURE: ?
6. 3: 2 :: AI: ?	31. WHALES: CETOLOGY :: ACQUIRED CHARACTERISTICS: ?
7. RADAR: ACRONYM :: CABAL: ?	32. HATED FOR ILL: ADOLF HITLER :: LAUD'D NORSEMAN: ?
8. 45: 63 :: ASANKA: ?	33. WE CALL THEM: ESKIMOS :: THEY CALL US: ?
9. SALT: PEPPER :: CACHI: ?	34. PESTLE-PHARISEES: MEDINKIA :: STRONG-SHOULDERED: ?
10. -24: +24 :: YECTO-: ?	35. HARDNESS OF MINERALS: MOHS :: HOTNESS OF CHILLIES: ?
11. SODIUM: CALCIUM: CHILE: ?	
12. 1: 1/3 :: INCH: ?	
13. PARALLEL: OBLIQUE :: FRUSTUM: ?	36. 1 4 3 9 6 1 9 4 ?
14. 2414: 2010 :: PRINCE: ?	37. 14, 210, 1470, 6370, 19110, 42042, ?
15. MERCHANT: ROYAL :: LANE: ?	38. 5, 4, 6, 9, 7, 5, 8, 1, 9 ?
16. SLLSL: SLL :: DOCHMIUS: ?	39. 1 4 4 4 6 6 7 8 ?
17. MKS: METRE :: SFS: ?	40. 58, 89, 145, 42, 20, 4, 16, 37, ?
18. SUPERMAN: KRYPTON: DALEK: ?	41. 2189, 733, 251, 97, 59, 73, 131, ?
19. 3am: 4:30am :: GALLICINIUM: ?	42. 6, 9, 8, 20, 70, 18, 22, 29, 28, ?
20. MOMENT: ETERNITY :: POLITICS: ?	43. 9, 11, 10, 9, 11, 19, 12, ?
21. FOLD: FOLD/CUT :: ORIGAMI: ?	44. 3 8 7 2 9 8 3 3 ?
22. WOLF: LYCAON :: GRASSHOPPER: ?	45. 1 5 1 5 4 2 6 2 ?
23. TOP LIP: PHILTRUM :: EYEBROWS: ?	46. -1 -2, 0, 16, 110, 708, 5026, 40304, ?
24. FILM PEOPLE: OSCAR :: FILM ANIMALS: ?	47. 2 1 4 4 5 0 6 9 ?
25. STAMP: PHILATELIST :: TOILET PAPER: ?	48. 3 6 4 6 2 1 5 9 ?

NUMERICAL SERIES