Noesis

The Journal of the Mega Society
Number 72
August 1992

EDITORIAL
Rick Rosner
5139 Balboa Blvd #303
Encino CA 91316-3430
(818) 986-9177

A COUPLE OF SHORT LETTERS FROM RON HOEFLIN

Dear Rick:

Regarding Geraldine Brady's query (in **Noesis** #70) about possible dissertation topics in philosophy for someone with a mathematical orientation, Susan Haack has written a book titled **Philosophy of Logics** that covers many topics and has an extensive bibliography. There is another book by Haack I haven't seen but which might be even more promising titled **Deviant Logics**.

One of the most interesting and readable articles on logic I've seen is the article, "Logic, Deontic," in **The Encyclopedia of Philosophy.** It uses no logical or mathematical symbols at all, but no doubt such symbols could be devised or have already been devised.

On the other hand, one of the **least** readable essays on logic I've seen is the article, "Logic, Combinatory," in **The Encyclopedia of Philosophy**, which is loaded with symbols, many of them inadequately explained, if explained at all. The writer appears to assume that his readers will have a copy of Russell & Whitehead's **Principia Mathematica** at their finger tips because he refers them to a passage there without explaining what the passage says!

Ron Hoeflin

Dear Rick:

Regarding Chris Cole's question in **Noesis** #70 on how to norm the proposed "Short Form" Mega Society test at the mega level, I am going to devote the entire first issue of my new journal, **Oaths**, for the One-in-a-Thousand Society to the problem of using the SAT as a tool for norming other tests. I have a pamphlet about the SAT that shows that the adjustment factor for converting SAT percentiles to general-population percentiles is surprisingly stable above an SAT Verbal Aptitude score of 500. In terms of IQs (where there are 16 IQ points per standard deviation), the adjustment factors needed to convert SAT scores to general-population scores are as follows:

SAT Verbal Score	Adjustment factor
350	11 IQ points
400	10 IQ points

450	8 points
500	7 points
550	7 points
600	7 points
650	7 points

In other words, one's percentile vis-a-vis other SAT participants (college-bound high school students) yields an IQ that is **consistently 7 points too low** for verbal scores of 500 or above, due to the fact that college-bound high school students are brighter than non-college-bound high school students in the 17-18 age range. If this 7-point adjustment is true of mathematical aptitude scores, too (I haven't computed this yet), then in general one can transform any combined verbal + qualitative SAT score of 1000 or above to a percentile, then to a pseudo-IQ, and finally to a true IQ by adding 7 IQ points. Using this 7-IQ-point adjustment factor, one gets the following results:

SAT score	SAT percentile	Pseudo IQ	True IQ	General pop. percentile
1400	99.05	138	145	99.75
1450	99.66	143	150	99.9
1540	99.9815	157	164	99.997
1595	99.9992	169	176	99.9999

These are just preliminary results. How to use these results to norm another test by using reported SAT scores will be explained in **Oaths**. My chief problem in norming the Mega Test using this data is that there are only about 4 people who scored above 40 on the Mega Test who reported SAT scores. It would be helpful if many more people in this range would report their SAT scores.

If you want to norm the new "Short Form" Mega Society test using the SAT as a guide, you should insist that all participants report their SAT scores.

Ron

P.S. Of course, another big "if" is "if the 7-IQ-point adjustment factor remains stable above 1300 on the SAT (or 650 verbal)." My SAT pamphlet does not give any data on this question.

P.P.S. You are welcome to reprint all or part of the **Oaths** article in **Noesis** if you wish.

[Editor's comments--Another big "if" is whether self-reported SAT scores are accurate. I've run into several people who claimed perfect 1600 scores, usually at parties where they were trying to impress people. One guy claimed that he and four other guys in the same testing room used pencil-tapping code to each get a 1600.

Chris Langan thinks that Hoeflin is pronounced Heff-lin, while Chris Cole and I have always said Hoe-flin. Ron, which is correct?

Bob Hannon says he'd prefer less material from Ron and more material from other people, but the system, such as it is, doesn't work that way. Ron's material isn't run at the expense of other contributors' stuff. Almost everything submitted is printed. The most drastic effect of lots of material from Hoeflin or any other contributor is that material gets bumped into a subsequent issue as Chris Cole tries to hold down mailing costs--the price jumps if the issue goes over 20 pages. Plus, I like Ron's stuff; let me digress:

I like nearly all the material I receive, even when it's a pain in the butt to type in and otherwise arrange for publication. Kevin Langdon says that the material printed in Mega-level publications is no more sophisticated than material appearing at the one-in-a-thousand level. That may be so. However, I am

increasingly convinced that the content of Noesis, while not always hyper-sophisticated, reflects members and other readers who are more emotionally intricate than any other high-IQ group. Our contributors are consistently concerned with redefining themselves and their worlds. In **The World According to Garp**, a sports caster eulogizes a former All-Pro football player who had a sex-change operation, saying something like, "She was an inspiring representative of those people who lead . . . complicated lives." The articles in Noesis may not be much more complicated than that which appears in three- and four-sigma publications, but our readers' lives are. And based on biographies I've read, I'd guess that there is a positive correlation between complicated lives and great lives.

Attention Ron H. and Kevin Langdon: In the June, '92 issue of **In-Genius**, there is a piece by Langdon headed "Reply to Jerry Bails on Understanding Ourselves," with comments by Hoeflin. Langdon discusses how human consciousness is deceptively fragmented, and I like the piece as well as Ron's reply. I'm gonna run the piece in an upcoming Noesis unless Kevin or Ron tell me not to. I tried calling Kevin in Berkeley and got some other Kevin altogether.]

RESPONSE TO CHRIS LANGAN
Chris Cole

Chris has asked if I am "absolutely determined to resist the CTMU to the bitter end." Aside from seeming somewhat apocalyptic, this question surprises me. I don't think I've ever said anything other than that I disagree with Chris' solution to the marble problem and to Newcomb's paradox, that I don't see how he applied the CTMU in these solutions, and that therefore I don't know whether I agree with the CTMU or not. I echo Rick's editorial in the last issue: show us something that the CTMU computes that we cannot compute some other way. There are an awful lot of unsolved problems; solve one.

Chris also asks if I am "*quite certain* that you know what you're arguing with?" Indeed, I believe that I do know whom I'm arguing with, although I suspect the other members do not. Chris, since I suspect you understand what I am getting at, perhaps you would like to explain?

POSTCARD FROM WILLIAM J. SHARP

Dear Rick R.,

Concerning that list of people who qualified but never joined Mega, David Garvey was editor of **Megarian** just before Jeff Ward. Since then, rumor has it he disappeared. Marilyn vos Savant is "The World's Smartest Person" w/ IQ of 228, according to many years' listing in **Guinness Book of Records**. She has newspaper column & makes celebrity appearances on TV & elsewhere.

Why bother w/ Cal State system? Presumably you did well on SAT, why not UC system or even Cal Tech?

Sincerely,

Wm. J. Sharp

[I don't think my grades or temperament are good enough for UCLA or Cal Tech. I am, however, going to get a BS. through the University of the State of New York. Yay. Thanks, Richard May.

Mr. Sharp--sorry your puzzle didn't get into last issue--I thought I did everything necessary to get it onto the disc, but the disc thought otherwise. I'm hoping I do it right for this issue.]

A LETTER FROM RON HOEFLIN

Dear Rick,

Regarding your view that all races have the same intelligence level, I'm sure you are aware that many hominid species of the past few million years are extinct. And many of them were sufficiently widely distributed that their extinction could not have been due to some freak accident. So how did it happen that they became extinct while other hominids--our own ancestors--survived?

The theory of evolution assumes that there are many small variations and that variations that could not compete successfully against environmental pressures simply became extinct. If all hominids were identical, then the very foundations of this evolutionary theory would be undermined. Do you claim that evolution is a false theory? Are you a creationist?

If your view is that evolution worked in the past but now it can't work any longer because human beings are as identical as peas in a pod, I think this would be an extraordinary and unbelievable view given the vast differences one can see simply by opening one's eyes.

If you are saying that there are differences but that they are too small to observe, again I say, open your eyes.

It seems to me that homelessness and slums are, at least in part, the continuation of evolutionary stresses on the human species **despite** our best technological advances, and **despite** egalitarian efforts to ameliorate the lot of the "disadvantaged."

I'm **not** saying that **all** homeless people or slum dwellers are stupid or incompetent at some fundamental and ineradicable biological or hereditary level. All that my view requires is that they be **slightly** less intelligent or competent than the rest of the population, **on average**. So pointing to exceptions is, of course, irrelevant to defeat my argument.

In the U.S. about one black male out of 33 will die by homicide, which is about four times the average homicide rate for the U.S. population as a whole. This death rate through homicide, AIDS, etc., can be compensated for by a higher birth rate, of course. But I have recently read a prediction that the total population of several central African nations will probably **decline** over the next 25 to 30 years due to AIDS. AIDS is one disease that can be avoided to a large extent by prudent behavior. Homicide likewise can be avoided to some extent if one avoids high-risk occupations such as drug dealing. The point is that homicide, AIDS, etc., are **evolutionary pressures** that have a **different effect** on people of **high** vs. low levels of prudence or intelligence.

If I were a black person and were as intelligent as I now am, I'd probably regret that my black brethren tend to be less competent than members of other races, on average. I would see two possible future outcomes for my race: (1) after the less competent blacks are culled from the population through homicide, AIDS, homelessness, etc., there might be a flowering of black civilization as the more competent blacks began to compete more successfully, or (2) the blacks might cease to exist as a race due to interbreeding with other races.

(This was discussed by me in a previous issue of **Noesis**, but that was before the amalgamation with the old **Mega Society**, I believe. I'd like to hear an **intelligent** response, not a grotesquely dismissive one this time, if possible.) Incidentally, according to Cattell, the author of various IQ and personality tests, one theory as to why blacks might have somewhat smaller intelligence than other races is due to the necessity

to be thin in order to radiate heat more effectively in hot climates. This would result in women with pelvises too narrow for exceptionally large-headed children to be successfully born. There is a small but statistically significant correlation between head size and intelligence. All you need to do to stunt a civilization is to deplete the tiny number of geniuses at the upper end of the intelligence spectrum. An isolated genius here or there will have insufficient intellectual companionship to share ideas and engender a great civilization. Cattell's view is that with the advent of Cesarean births this negative pressure on the head size and hence the top-end intelligence of blacks will disappear and you will eventually find more and more geniuses appearing in the black population.

If all this sounds "racist," bear in mind that even blacks support explicitly racist groups such as the NAACP, whose last two initials stand for "Colored People." Likewise, affirmative action programs sponsored by the U.S. government are explicitly racist in that they set aside certain advantages for so-called "minority groups." The only way to get rid of racism entirely would be to get rid of the NAACP and affirmative action in addition to racism at the other end of the spectrum such as the KKK. By "racism" I simply mean the recognition that there are races, i.e., human groups with average biological, hereditary differences from one another. Any time there is any difference at all, it will, of course, be possible to put some personal value judgment on these differences. If one person likes opera better than country & western music, are you going to tell him to cut out making such absurd value judgments? You could try, but communist societies tried to foster certain aesthetic preferences without ultimately succeeding, just as fascist societies tried unsuccessfully. like wise with beauty pageants: you can terminate such pageants as being "sexist," but men will continue to feel that some women look better than others.

We can defeat racism by blending the human races over the next few thousand years into a single more homogenous race, or we can try to live with races, even "foster" them (either intentionally or unintentionally) just as dog or cat breeders try to create new breeds. A single homogenous human stock would have the disadvantages of being susceptible to being wiped out by a single catastrophe such as a disease to which that particular strain is not immune. So perhaps we should learn to learn with our differences, which means, in effect, to be tolerant racists.

I personally find it perfectly easy not just to tolerate but to prefer certain individuals whose racial type is not identical to my own. Almost any cat is more graceful and attractive than almost any human, for example, and a woman with long straight blonde hair and a nice figure has a physical beauty that my own brown-haired male type lacks. And I certainly think it would be better to have Rick Rosner's level of intelligence than my own. But I prefer my more persistent focus on certain important intellectual problems than his more aimless and unfocused approach to life up to this point. But H. Herbert Taylor, who scored 45 on my Mega Test, did not get his Ph.D. until the age of 53, so perhaps eventually Rick will focus his titanic intellectual energies on some really crucial problems.

Ron

Editor's comments:

MY PROBLEM WITH BLACK PEOPLE
by Rick Rosner

Both Ron and Bob Hannon have made comments about the possible intellectual inferiority of blacks. My objections to this are for the most part shallow, but strongly held.

A. It's silly, but I hope someday to be famous, and I'd hate for interested parties to look over back issues of this journal and see racist stuff. How vain and superficial can I be? Very.

B. I've had contact with many times more white people than members of any other race. I feel comfortable saying that as a group, white people don't seem that smart to me. Neither do they seem that

stupid. To me, white people are just people. As a bar greeter, I've talked with about half a million different people, fewer than twenty thousand of whom are black. I love to formulate stereotypes and make generalities but feel more comfortable stereotyping whites than any other group.

C. Most of the blacks I've known have been very impressive people. I'm sure they're not a statistically accurate representation of the entire American black population, but nevertheless, when I think of black people, I think of them.

I think of Liv Wright, a woman who hired me to tutor her for the GMAT (the SAT for aspiring MBA's). She needed a 500 to get into B-school. I noticed she wore thick glasses for reading and even so had a hard time deciphering the small print. I told her that the testing service had large-type editions with relaxed time limits for people with visual handicaps. She went from a 480 (50th percentile) to a 630 (90th percentile).

I think of Steve Griffin, a regular at Anthony's Gardens, a Boulder bar I bounced. At least twice, when bar fights got out of hand, Steve waded in, broke it up, and saved me from an ass-kicking. Anthony's had the highest proportion of black customers of any Boulder bar. Many were scholarship athletes at the University of Colorado. They were taller, handsomer, better dressed, better spoken, and had better manners than the average customer. Many times, a white guy, new to the bar, would waddle up to me and say something like, "I guess you got to be a nigger to get laid in here." I wanted to say, "Well, it helps if you're not short, fat, bald, and sweating through polyester," but it wasn't my job to offend customers.

Tony DuCross was an Anthony's bouncer. He was a single father, a high school English teacher, a model, and a nice guy. He stands 6'4" and could bench press 350. Sometimes he'd model with his son, but he said they lost a lot of work because their skin tones were too different. He'd turned down offers in pro sports because he'd grown too frightened of flying. Standing next to him at the bar door, I felt rather bug-like.

I think of Johnny McCowan, my ex-boss at The Oar House. He got shot in Vietnam and still came back to play pro football and pro baseball. He's the only Oar House manager who isn't a dick.

I think of Lorenzo Clemons, an autistic savant who used to live at a home for the retarded up the street from my frat. This guy has a hard time talking but can do dead-on absolutely correct and complete animal sculptures from memory.

I'm not friends with any black physicists or mathematicians or actuaries. Then again, I know only one physicist, one mathematician, and two actuaries. If genius is measured in terms of achievement, I don't know any geniuses, black or white. I've had only a couple black teachers. Mr. Sheffield was terrible--racist and snotty and fey. He moonlighted at Fashion Bar and you could see what color his underwear was through his pants. The three Hispanic teachers I've had, Mr. Aguirre, Mr. Raigosa, and Mr. Talamante, were fiery and funny and fearless and excellent.

Feminists used to say, "The personal is political." I can read about blacks as a group, but I can't **think** of them as a group. I can only think of the black individuals I've known, with affection and some sense of personal inferiority.

I can think of the blacks who scare me--hoods on New York subways or in Venice. I can think of the kid on the 42nd St. IRT platform with Adidas shaved into his hairdo, except it was misspelled "Addias." But I can't think of these blacks as representative. It's my own problem.

[More Editor's comments: I don't want to delve deeply into the genetic and evolutionary nature of blackness, but I've read that you get black people in a relatively short time when a population is exposed to strong sunlight. I think that cognition is a more persistent trait than skin color, though I don't have any

guess about the persistence of genius. I suspect that racism exists in any species that exhibits assortive mating, where sexes select each other on the basis of perceived traits. It's a way to provide Darwinistic selection pressure even when a species is very successful at surviving challenges from the natural environment. That is, any species that has overcome natural selection creates artificial selection criteria.]

TWO LETTERS FROM P. A. POMFRIT

[I've edited these together into one letter--Ed.]

Dear Rick,

Many thanks for all the back issues of the newsletter. [Thank Chris--Ed.]

Unfortunately, I had no response to the 25 verbal analogy questions which were published in no. 65 of the journal--so, overleaf, you will find the answers that I was expecting. If you feel that any of them might be suitable for the "Best 20 Test" please reprint.

I haven't spent much time yet on the questions published in no. 67 so I don't know whether the following 1st attempts are correct. (I will try again.)

Here are my revised answers to the "short test." [See previous issue]

Has Dr. Hoeflin compiled any more trial tests yet? I have numbers 1 to 5 (inclusive). If he has, I would appreciate copies of them.

Best Wishes,

Pete

[Hoeflin's Trial Test 6 ran in last month's issue. Of your 25 analogies, I think items 13, 14, and 19 might merit consideration for the short form test (though 14. is very culture-biased). They are included in the short form test below; here are the answers to the remainder.]

1. ARTHRODESIS
2. VALSALVA
3. EMBRACERY
4. MOLLWEIDE
5. CHASMOGAMY
6. SYNAL(O)EPHA
7. EDGAR
8. EKISTICS
9. DECENNOVAL
10. SUPERBIQUINTAL
11. YAKUZA
12. FILIOPIETISTIC
15. PHILLUMENIST
16. THELYTOKY
17. TINCTORIAL
18. THYRSUS
20. TROCHILIC
21. EXCELSIOR (motto's)
22. PAROUSIA
23. HOWARD (wives of Henry VIII)
24. ONTOGENESIS
25. GLAUBER (salts)

SHORT FORM TEST -- COMMENTS

Chris Cole

In response to Ron's proposal to norm the "short form" test using the reported SAT scores of test takers, I have a question: Isn't it the case that the SAT has a hard time discriminating above an IQ of 150 or so?

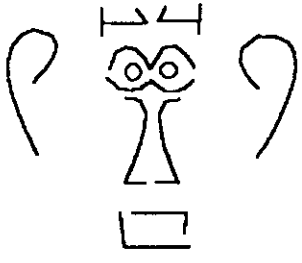
Or, put another way, I thought there was no meaningful difference between an SAT score of 1550 and 1600.

By the way, I have been thinking about Ron's objection that no one will take a test on which they cannot do a single problem. I think this objection is very valid. I therefore want to revise my proposal for the test. First, I think we should put a few easy problems on it that give the "flavor" of the harder problems. For example, problems like Ron's PAIN : RUE :: BREAD : ?. This will help test takers to understand what we are getting at, and should not be too laborious for most people. It also will draw some people into taking the test. So please submit some easy "aha!" type problems.

Second, I think we are not going to be able to stick to the "problems that only one Mega member can solve" criterion. Despite my various pleas, relatively few people (and in particular no old Mega members) have attempted any of the "short form" problems so far. This is probably due to busy schedules. So instead, let me propose that when we have enough problems, we let Rick (in consultation with Ron) pick the problems that he likes the best to compose the test. This removes the monetary incentive to contribute, but that seems not to be an effective motivator anyway.

SHORT FORM TEST – CONTINUED

11. 95 : 98 :: VENITE : ? (Pomfrit)
12. MINCES : EYES :: PORKIES : ? (Pomfrit)
13. 2823 : 5331 :: ELEPHANT : ? (Pomfrit)
14. (Sharp)



W Sharp

SEVERAL LETTERS AND ARTICLES BY ROBERT J. HANNON

ROBERT J. HANNON 4473 Staghorn Lane Sarasota FL 34238-5626
26 May 92

Rick Rosner, Editor
Noesis
5139 Balboa Blvd
Encino CA 91316-3430

Dear Rick,

You may be right! I have yet to discover anyone in a position of power who has any idea as to what is going on in today's world. Many have ideas as to how it got the way it is. Solutions to today's problems are largely "unacceptable" to 99.999% of the population. We ought to talk about such things, but only to the extent that we can eliminate emotionalism and idealism from our discussions.

****

The universe is entirely predetermined at all levels. The Heisenberg Uncertainty Principle and its derivatives are based on fallacies. A deterministic universe is not necessarily Newtonian; it may be General Relativistic. The fact is that there is no evidence that the universe is **not** rigidly deterministic. During the brief period of time that we call "now" (one time quantum or TQ, which is perhaps 10^-30 sec in duration) all events realize their probability as being 1 or 0: they either happen or they don't. It is not possible for any event to happen (or not happen) with any probability other than 1 (or 0). Other "probabilities" are convenient fictions used for theoretical purposes, or for prediction of the average of happen/don't-happen for large numbers of **purportedly** identical events. It remains a fact that current probability theories do not and can not predict whether or not any single event will or will not occur.

The first chapter of my book on science deals with the Heisenberg Uncertainty Principle in detail. It now occupies 18 pages, single-spaced. I have enclosed THE UNCERTAINTY OF UNCERTAINTY which is a highly-abridged extract from that chapter. You may publish it if you care to.

****

In reply to Robert Dick's question in #69: General Relativity tells us that, in any region of spacetime where an "accelerating field" (such as gravity) exists, the "metric" (the size of the meter and/or the duration of the second) of spacetime differs from that of a region of spacetime in which no such field exists. In the presence of such a field, the size of a meter or the duration of a second is different than where/when a field does not exist, or is more or less intense. Under the only generally-accepted solution of Einstein's Gravitational Field Equations, a second increases in its duration, and the length of a meter decreases, as the intensity of a gravitational field increases. In any such uniform field, the radius/circumference ratio of a circle centered on a mass is greater than Pi. If a clock is in an accelerating field, it still counts off seconds, but those seconds are longer than those it would count off if it were not in that

field. This has nothing to do with the mechanics of the clock, but with the geometry of spacetime. The clock doesn't "know" it is being accelerated; it just counts off seconds as they exist in the spacetime where it is located. General Relativistic time dilation, unlike that of Special Relativity, is (theoretically), a real, factual difference induced by the alterations in the geometry of spacetime that are, in themselves, the "accelerating field". Gravity arises from the alterations in the geometry of spacetime caused by the presence of a mass. Seconds are (theoretically) actually longer, by a very small amount, on the surface of the earth than they are in intergalactic space far from any significant gravitational field.

Electric and magnetic fields can also accelerate electrically-charged masses, but they are not included in conventional General Relativity theory. Many, including Einstein, Weyl and Eddington have attempted a more general theory that includes those fields, but so far none has succeeded.

The reason why gravity alters the geometry of spacetime is not explained by General Relativity. Neither is the reason why inertial acceleration has that effect. Einstein simply postulated the interaction between the gravitational potential of mass and the four vector dimensions of spacetime. He also took the position that gravitational mass and inertial mass are identical; and thus it is not possible to differentiate between the effects of gravitational acceleration and inertial acceleration (the kind involved in F=ma). By inference then, if the alterations of the geometry of spacetime arising from the gravitational potential of mass produce the "acceleration" we perceive as gravity, then inertial mass must produce the same effects. Most physicists believe (mistakenly, in my view) that the Special Relativistic increase in mass with velocity is real, and increases the alterations of the geometry of spacetime around the ship.

Thus, if a spaceship accelerates away from the earth, it may be subject to two General Relativistic time dilations; one due to the decrease in the earth's gravitational field intensity as the ship moves away from the center of the earth, the other arising from the ship's inertial acceleration. In my personal view, the time dilation effect of inertial acceleration (and/or special relativity) is difficult to justify. The Einstein Field Equations do not include that effect. Nevertheless, under the accepted interpretation of the Schwarzschild External Solution of Einstein's equations, a second as measured aboard a spaceship in gravity-free space will be shorter than a second on the earth's surface. The difference will be due to the fact that the metric of spacetime at the earth's surface is more "curved" than it is in gravity-free spacetime. The difference in the duration of a second would be extremely small, but it is, theoretically, a real difference, measurable by comparison of elapsed time as measured by identical "clocks" on the ship and on the earth. The gravitational time dilation effect is also responsible for the gravitational redshift, which remains to be incontrovertibly validated by observation.

****

With respect to your idea that "relativistic" effects differ from "Doppler effects". Special Relativity predicts the exact value of the Doppler effect on electromagnetic radiation; thus the Doppler effect is intrinsic to Special Relativity. The Special Relativistic Doppler Frequency is given by:

$$Fd = Fs \sqrt{[(1-S/C)/(1+S/C)]}$$

Where Fd is the frequency as measured at the detector (observer), Fs is the frequency as measured at the source, S is the relative velocity of source and detector, C is the velocity of light in a vacuum. This version applies when source and detector are receding; the signs are reversed when they are approaching. In my view, the physical processes involved in the Doppler effect for EM radiation are not consistent with the invariance of C. Nevertheless, the Doppler effect in EMR is real and conforms to the above equation.

What would happen if S were greater than C? Fd would have an imaginary value. In my view, this would result only in an undetectable 90° phase shift in a wave having the frequency predicted for that value of S by the above equation. There is no way that an observer here on earth could differentiate between objects moving at relative velocities of less than C or more than C, on the basis of the Doppler shift of their spectra.

A receding object has almost exactly the same Special Relativistic time dilation as does an approaching object:

$$t' = (t-Sx/C^2)/\sqrt{(1-S^2/C^2)}$$

Where S is relative velocity. The $(-Sx/C^2)$ term is usually dismissed as being trivial in magnitude, so the time transformation equation usually appears as:

$$t' = t/\sqrt{(1-S^2/C^2)}$$

Then the fact that S is squared eliminates it's direction from consideration. t' is the same whether the frames of reference are receding or approaching.

What would happen if S were greater than C? If it were possible for an observer to directly view a perfect clock resident in an IFR moving at S>C relative to himself, he would not see it as counting backward, as some seem to believe. It would measure the duration of seconds as being longer than those measured by his own identical clock, but they would be "imaginary" ($N\sqrt{(-1)}$) seconds. I doubt that we would find those seconds unusual in any respect. If both clocks were equipped to measure elapsed time only for those intervals in which their velocity relative to the observer is constant and linear, and the "moving" clock were returned to the observer's frame of reference, he would find that the elapsed time measured by both clocks would be identical.

There is no "Twins Paradox". No experiment conforming to the premises of the Lorentz Transformation has ever shown that a "moving" clock recorded a longer elapsed time than an identical "stationary" clock. If any such result were ever obtained,

Special Relativity would thereby be invalidated.
****

I have written separately to Chris Cole re his RELATIVITY-A PRIMER.

If you are interested in truly informing your members about Special Relativity, I have transcribed Einstein's SIMPLE DERIVATION OF THE LORENTZ TRANSFORMATION, including comments on his mathematical logic. This is about 10 pages long, single spaced. The math is almost entirely just plain algebra. This might be a way of getting interested parties on the same footing as to real knowledge of the mathematical premises of Special Relativity.

My check for $10.00 for another ~~10~~ 6 issues is enclosed. Keep up the good work!

Best regards,

Bob

THE UNCERTAINTY OF UNCERTAINTY

The Heisenberg Uncertainty/Indeterminacy Principle (U/IP) is the foundation stone of Quantum Mechanics (which should not be confused with Planck's Quantum Theory), which, in turn, underlies most of today's theoretical particle physics. The U/IP tells us that we cannot, in principle, simultaneously know the exact position and the exact momentum of any object; that the product of the error (or uncertainty) in position (δq) and the error (or uncertainty) in momentum (δp), of any object, determined at exactly the same time, can not be less than $h/2\pi i$:

$$\delta q \delta p = h/2\pi i \qquad (1-1)$$

where h = Planck's constant, $2\pi = 6.28$, and $i = \sqrt{(-1)}$. Equation (1-1) is often also seen as $\delta E \delta T = h/2\pi i$, where δE = error or uncertainty in energy, and δT = error or uncertainty in the time duration of E.

It is a common misconception that Heisenberg originally developed the U/IP by simple logic ("Heisenberg's Microscope" in physics texts), based on the idea that a single quantum is the smallest amount of energy that can be applied to any object, such as an electron, to measure its position and momentum. In fact, Heisenberg came up with his "Microscope" (which will not stand up under rigorous scrutiny) more than a year after his discovery of the U/IP, in an effort to provide a logical rationale for its otherwise incomprehensible implications.

Actually, Heisenberg discovered the U/IP as an accidental side-product of his efforts to develop a mathematical model of the hydrogen atom that would explain its spectrum. After several unsuccessful attempts, he and his mentor, Max Born, tried to solve this formidable problem through the use of what then (1924) was an unusual mathematical tool called Matrix calculus. Matrix calculus was originally devised to permit geometrical transformations to be dealt with using methods similar to algebra. It is not clear why Heisenberg and Born chose to use Matrix calculus in their attempt to model the hydrogen atom, as it was later shown by Erwin Schrodinger and others to be unnecessary and inappropriate to that purpose.

As the physical premise for his mathematical model, Heisenberg used the physical model postulated by Nils Bohr. In Bohr's view, the hydrogen atom consists of a single proton with a single electron rotating in orbit around it. Heisenberg's mathematical expressions for the electron's position and momentum treated the electron as a conventional physical object having mass and that obeys Newton's Laws, and permitted the electron to have only specific energy-states in accord with Planck's Quantum Theory.

Sets of expressions for the electron's position at energy-states corresponding to the known spectrum were arranged as a Matrix, and corresponding sets of expressions for the electron's momentum were arranged as another Matrix. In their effort to simultaneously solve all of these expressions, Heisenberg and Born multiplied the positions matrix, [q], by the momenta matrix, [p]. In their various attempts at this procedure they found that they got two different results. When they multiplied [q] by [p], they got one result; when they multiplied [p] by [q], they got another result. The difference between the two results was $h/2\pi i$. They pursued this strange situation and found that if they used other members of the totality of appropriate sets of expressions for positions and momenta, the difference between [q][p] and [p][q] was (almost) always $h/2\pi i$. Expressing this symbolically:

$$[q][p] - [p][q] = h/2\pi i \qquad (1\text{-}2)$$

Heisenberg and Born were utterly baffled by this peculiar relationship. They brought it to the attention of Nils Bohr, seeking his help in fathoming its physical meaning. At some point, Heisenberg performed the seemingly straightforward (but actually highly questionable) operation of changing (1-2) to an algebraic equation:

$$qp - pq = h/2\pi i \qquad (1\text{-}3)$$

and then proceeded to state:

$$qp - pq = \delta(pq) = h/2\pi i \qquad (1\text{-}4)$$

and, finally:

$$\delta p \delta q = h/2\pi i \qquad (1\text{-}5)$$

where δ means "the difference in" the associated parameter.

Heisenberg, Born, and Bohr sensed something profoundly fundamental in equation (1-5), but its meaning was not immediately apparent.

Apparently it was Heisenberg who decided that "δ" in (1-5) actually means "error or uncertainty" of the associated parameter, and that (1-5) means that the error or uncertainty with which we can simultaneously know an object's position and momentum can never be zero. According to Heisenberg's interpretation, (1-5) says the product of those errors or uncertainties can never be less than, indeed must equal, $h/2\pi i$. If we determine an object's position with zero error, at the same time the minimum error with which we can know its momentum must be infinite, and vice-versa. Further, this constraint is inherent in nature, it has nothing to do with the limitations of our measuring instruments or technology. With perfect instruments, we still can not simultaneously know the exact position and the exact momentum of any object. Both of these quantities are thus intrinsically uncertain or indeterminate.

This interpretation of equation (1-5) is known as the Heisenberg Uncertainty/Indeterminacy Principle. It is accepted as fact by almost all physicists. It is the basic premise of much of today's complex theories about the properties and interactions of the fundamental particles of nature. Through Heisenberg's later gratuitous alteration of Schrodinger's Equation, it led to the introduction of probabilistic concepts into theoretical particle physics. It has never been directly proven by experiment, yet it is generally accepted as if it is a proven fact.

While the logic leading to equation (1-5) appears simple and straightforward, it has major flaws.

The primary and most important flaw is that the strange result Heisenberg met in multiplying matrices, leading to expression (1-3), is not strange at all: it is usual, and to be expected, in matrix multiplication. It is a known property (called non-commutation) of matrix multiplication

that the product of two matrices depends on the order in which they are multiplied, that [a][b] is (almost) always different from [b][a]. This is a property of matrix multiplication, **not** of the phenomena to which it was applied by Heisenberg and Born. They mistakenly attributed an almost unique peculiarity of their mathematical tool to the phenomena they were using it to analyze.

It is interesting to observe that, years after the U/IP became generally accepted, and unnoticed by most physicists, Heisenberg made equation (1-5) a **conditional** relationship which is true only when p and q are non-commutative, without defining the conditions under which they would have that property. Heisenberg also subsequently abandoned matrix calculus in his further efforts in quantum mechanics.

In addition:

a) The conversion of **symbolic** relationship (1-2) to an **algebraic** equation (1-3) is highly questionable. Matrices are not algebraic expressions, and do not obey all rules of algebra, as is shown by their non-commutative multiplication. Heisenberg's subsequent manipulations culminating in equation (1-5) ignore that fact.

b) Heisenberg's radical alteration of the meaning of δ from "difference" to "error or uncertainty" is arbitrary, and is only his personal judgment. There is no inescapable logic which imposes this definition.

c) Equation (1-5) is often seen with the imaginary factor, i, which equals $\sqrt{(-1)}$, omitted. This is mathematically unjustifiable. While p, q, E and T appear to actually have only **real** values,(1-5) requires both δp and δq (or both δE and δT) to have only certain **complex** values; neither can have **real** values. This is at odds with the Heisenberg and Bohr interpretations of its physical meaning.

While there are several additional compelling arguments against the validity of the U/IP, it is already apparent from those cited above that the Uncertainty Principle is founded on highly uncertain premises.

Robert J. Hannon 4473 Staghorn Lane Sarasota FL 34238

ROBERT J. HANNON 4473 Staghorn Lane Sarasota FL 34238-5626
30 June 92

Rick Rosner, Editor
Noesis
5139 Balboa Blvd
Encino CA 91316-3430

Dear Rick,

Enclosed is a copy of my letter of 30 June to LeRoy Kottke in reply to his self-denigrating letter in NOESIS 70. I think you should publish it so that others will know that I don't think LeRoy is so ignorant about special relativity as to warrant his own inference that he is a horse's ass.

I continue to be astounded when I encounter closed minds and authoritarian attitudes in those who participate in "high-IQ" groups. It is most mind-boggling when it comes from a person who evidences inadequate knowledge of the subjects involved.
****

With regard to "imaginary time". In Minkowski spacetime, the time dimension is intrinsically an "imaginary" dimension, that is, it takes the form iCt, where $i = \sqrt{(-1)}$. It is "i" that makes a number "imaginary". In the Four Vector:

$$s^2 = x^2 + y^2 + z^2 + (iCt)^2$$

simplifies to: $s^2 = x^2 + y^2 + z^2 - C^2t^2$
or: $s = \sqrt{[x^2 + y^2 + z^2 - C^2t^2]}$

where s = the magnitude of a four-dimensional spacetime vector, also called a spacetime interval.

The ordinary three dimensions of space, x, y, z, are inherently orthogonal. When Minkowski developed his ideas of spacetime, he found it necessary to "transform" time to a "space-equivalent" by multiplying t by C (which assumes that C is the maximum possible velocity), and then to make Ct orthogonal to x, y, and z by assuming it to be "imaginary" relative to space, because "imaginary" numbers are orthogonal to real numbers.

This "transformation" of the time dimension to an orthogonal space-equivalent was pure assumption on Minkowski's part: it is an heuristic concept. Einstein adopted it in part in Special Relativity and entirely in General Relativity.

It is not plain that Hawking uses "imaginary time" in any different context. He sometimes seems to imply time that is "flowing" in a "direction" that is orthogonal to that of ordinary "real" time. In that case he may be implying $t\sqrt{i}$.
****

Why all the going-on about IQ tests? One gets the impression that there are those who really believe that there is a significant difference between the 99.9th percentile (whatever that may mean) and the 99.99999999999999>>>>>>th percentile (whatever that may

mean). My impression is that designing supposed super IQ tests provides an urgently-needed ego-boost to those who devise them, as it is implicit that they "know the valid responses" to all of the "questions", and therefore they must be among the most intelligent in the universe. Indeed, they are so superior that they can determine the criteria by which the intelligence of others may be judged! I doubt that any test has been devised that measures "intelligence" in the comprehensive, objective, sense or that any such will ever be devised short of (maybe) physical measurements performed directly on the nervous system.

****

While Ron Hoeflin does, on occasion, have something of interest to say, I can do with a lot less of him in NOESIS. How about using the space for the really interesting material you must receive from your members and associates?

****

While we all know it is "politically incorrect" to even infer that there is a racial difference in the average IQ of whites and blacks, it is interesting to note that it is not so incorrect to imply that asiatics have a higher average IQ than any other racial group. The social experience of the US is that there is some sort of group "defect" in black Americans, which they always blame on "racism". The defect seems to be a lack of willingness on the part of blacks to help each other move up in the world. Many other groups have faced "racism" here and have risen above it; the various asians are doing that right now, using cooperation and hard work.

Best regards,

ROBERT J. HANNON 4473 Staghorn Drive Sarasota FL 34238-5626
30 June 92

COPY

LeRoy Kottke
4787 Dawson Dr
Ann Arbor MI 48103

Dear LeRoy,

Looking back over our brief correspondence, I find nothing in it to indicate that you "grappled" with me. I offered you opinions, most of which you ignored. Once or twice you implied that I was "wrong" but you never offered me any logical reasons for those implications.

While the level of knowledge you displayed in your comments on special relativity was certainly pedestrian, it was not so benighted as to warrant calling yourself a "horse's ass."

Calumny is the argument of the ignoramus and the bigot.

Most sincerely,

cc: Rick Rosner, NOESIS