Noesis

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A SHORT LETTER FROM PETER SCHMIES

Dear Chris Cole,

according to Peter Pomfrit I did excellent on his analogies and number series published in <u>Noesis</u> 81, 82, 83.

I would suggest the following problems for your test:

2 6 11 17 24 30   E H K L

33 37 40 43 50 52 60   W Y

82   FF II JJ OO YY

Sincerely,

Peter Schmies

The Past and Future in
Spectral Analysis

The natural relationship between time and frequency is simple enough; $f(t)=1/t$. Simple but not linear. Who cares? Engineers, for one. Linearity is nice because the difference between linear functions is a constant. If I can somehow arrive at a linear relationship between my variables of interest; I can take the next logical step in analysis and take differences. It's a simple-minded outlook, pure and simple. "Oh, what's the difference"?; we always ask. Most quantities of interest change with time and it's usually the changes that are interesting, and that we are interested in. Taking differences is a way of eliminating the background; an elementary stab at relativity. And to conclude this thought, if I take differences and find that they also are changing, then I continue until I find a point where I do arrive at a constant; sometimes I have to go to great lengths and make use of sophisticated transformations to accomplish this. i.e., logarithms. All this is directed toward answering the question: "What's the difference"?----Indeed.
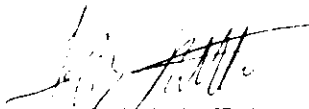
Given the first equation above; $f1(t)-f2(t) = k$ is a natural expression for a time difference translated into a frequency difference. The essential step in performing this transformation is the ascription of frequency to the time variable. This is no big deal. Electronic engineers call the device that does this a VCO; it converts a time varying quantity (voltage) into a frequency varying quantity (voltage). This, with a few other tricks, can become a sonar or radar, which in translation is a remote data acquisition system. The essential nature of these telemetering systems is their differential nature, they can answer the question---"What is the difference between the probing energy or transmission, and the reception"? They are able to compare, in a simple fashion, the outgoing inquiry with the reply. An electronic signal generated for the purpose of doing this is particularly easy to process. The sensed information exists in what electronic engineers call the "frequency domain". To explore the sonar / radar example further, one quantity that comes out of this is the range to the target of interest. This range has been translated into frequency; the more elapsed time between transmission and reception, the greater the frequency difference, or distance between transmitter and receiver. The ability to discriminate distances is now synonymous with the ability to discriminate frequencies.

The limit of distance discrimination is the limit of frequency discrimination. The natural limit of frequency discrimination is a single "event", or a single cycle of a particular frequency. One way to increase the discriminating power of a system, such as in the above example, is to increase the frequency multiplying constant of the VCO, or the rate at which potential information carrying energy is generated and transmitted; the more messenger events there are, the more detail can be carried back.

Because of practical limitations, the frequency coded transmission cannot increase indefinitely; regardless of practical considerations, I cannot wait for an indefinite period of time for an answer from my system, or the meaning of my questioning tactic becomes lost. Another transform, namely the Fourier Transform, quantifies this time limitation as an indefiniteness in my answer, whenever it returns after my question. This could be called the quantum probability function as contrasted to the classical probability function of Gauss. The classical Gaussian probability function has a very interesting nature. If I perform a Fourier transformation of said function, the result is as unaltered Gaussian function; it defies transformation. In other words, the Gaussian probability function is a singularity in general probability space. Gaussian probability also displays uncertainty, as it must, and also quantifies the uncertainty, as it must, but it does so at the expense of ignoring the quantum world. The quantum world is more diverse and realistic. The Gaussian probability describes a world of predictable smoothness and imperturbability that is soporific and unnaturally tranquil. Quantum probability, as quantified by the Fourier probability function is far more general, and describes the nervous jumpiness of reality exactly.

The most interesting aspect of Fourier probability space has so far not been discussed; and that is the associated side-bumps of probability that extend to infinite space-time, and carry the vestiges of any and all events that are characterized by abrupt beginnings and ends to all potential observers in the universe. These " side-lobes" as they are known to the Physicist or Communications Engineer, have the potential of providing a glimpse of the future. Events are spread out in Fourier Transform space, so that the past and future surrounding any given event may be observed in the form of these side-lobes; this is due to the basic transformation of time --> frequency that began this discussion. Time / Space has been treated evenhandedly by this transformation and the result is that a new view of nature at work has been achieved.

So why can't I see the future? I can't see the past because I can't exceed the speed of light. I can't see the future because I can't go slower than the speed of light! I'm stuck here in real space time just as I'm stuck in transformed space as the wash of events flows by me. All is not lost, however, because of these bumpy precursors of coming events that come to my attention before the main event. I can see the future in this respect, I suspect, only. That is, I can see what the future would be if perfect time-symmetry was preserved; if the bumps on one side of an event are the same as they are on the other side of any given event. The harsh truth is that they are not. The bumps on the future side are subject to influence by the far future, whereas the bumps on the past side of an event are forever unchangeable.

TWO LETTERS FROM KEVIN SCHWARTZ
1032 Centre Street
Newton Centre, MA 02159
(617) 964 - 5679

All Hallow's Eve, 1993

Chris Cole
POB 9545
Newport Beach, CA 92658

Dear Chris,

This Halloween I had planned to dress up as The Little Tramp. For just a few cents I got a silver-colored paper "derby", which I carefully painted dusty black, with a greyed brim. Also got myself a paper "cane" and one of those pencils you use to make dark mustaches. However, after my last Parental Altercation, I didn't have the heart for Halloween; especially after Dad bellowed at Mom: "He has no idea how close he is to being out on the streets!!" So, sigh, I threw away my costume.

Still hoping to sell stories / poems / articles -- have some half-developed ideas for Games puzzles, Mad satires, and Seinfeld scripts -- but meanwhile looking for better-paying if less-interesting work (Stopping by "Help Wanted" Signs on Sloshy Afternoons). May tutor (math, writing...) at a local high school; and / or give violin lessons.

Keep misplacing my puzzles. Did I send in the Two Ropes problem? The Meta-puzzle? Here's a still more recent one:

JUST / READ-

If you just read "just / read-" you get "just read"; but if you readjust "just / read-" you get "readjust. Either way, you're only doing what it tells you to do...

You could generate literally trillions of number of series based on pi, e, & exponents. For you armchair chaos theorists, how's this for a series generator?

1)   Start with irrational number I. (Example: third root of pi.)

2)   Let N be the largest integer smaller than I; let series be N-1, N-2, ...

3)   I - N = 1 / (next I), etc...

A few days ago, leafing through my Noesis stack, I came upon a bunch of interesting puzzles. Schmies letter mystery # 43: C-S (Cyrillic vs Latin). Pomfrit palindrome: 4 (IV).

Some Pomfrit series partial solutions:

A) $.07 \wedge .5$

C)   563

F) $17 \wedge -1$

G) $pi \wedge .5$

N)		$pi \wedge -1$
O)		$e \wedge 2$
R)	387420.570	
T)	169	
V)	550	
X)	4141	
AA)	1190	
BB)	286	
EE)	6, 4, ...	$31 \wedge -1$
GG)	8, 5,...	(same as G!)
JJ) ??	3, 2, 6, ...	$(1 / 3) + (9 / 4265)$
LL)	8, 5, ..	ln (pi)
PP)	57	
RR) ????	6	
XX)	0 3	$(3 \wedge .5) / 2$
YY)	4 0 1	$pi \wedge 2$

Do I get any credit?

Enclosed: $ 20 check for Noeses 86 to 105.

What was Feynman like? My best friend's mother, who attended a "visiting" lecture of his, thought he was a Great teacher; an orchestra acquaintance from Caltech thought RF too full of himself to be a good teacher.

Why do you call him Mega's absent prophet? (That was you -- wasn't it?) 1) I have a hard time imagining him joining even Mensa; didn't he hate anything that smelled of intellectual pretention? 2) He's a classic example of an IQ test goof; Gleick says RF scored just 125 on a childhood S-B! 3) More Megarians seem interested in debunking Feynman (and Einstein) than in following in his footsteps. 4) Would he have had the patience for the Mega verbal section? 5) So far as I know, no one in the Mega Society has Accomplished anything -- at least that the general American intelligentsia would recognize.

I've started reading Who Got Einstein's Office?; is it true you're mentioned in it?

How can I get information repre-merger Megarian? What was the 606 Society?

ISPE is holding a Symposium early July 1994, in Cambridge, MA. Megarians interested in attending or in submitting essays for publishing should contact Rich Kapnick:

10741 Moorpark # 19
N. Hollywood, CA 91602-2737

I've read you founded and sold three software companies. What do you do now? Are you still "doing physics"? Do you know Kip Thorne?

Have many more questions, but they'll have to wait for another rainy day (night?).

Mornfully yours,

Kevin L. Schwartz

1032 Centre Street
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November 10, 1993

Chris Cole   .
POB 9545
Newport Beach, CA 92658

Dear Chris 'n' Rick,

   Don't know much about (LA) geography -- hope neither of you were hurt by the fire-storms. Rick:
how was your move?

+ + +   One possible solution to Schmies problem 42:   5 7
More elegant is 9   (+ (10) + (10) + (10) = 39); but then the last row makes no sense.

Some more Pomfritters:

B)		((log pi))
D)	512	
E)	4	
I)	19, 939	
J)		((10^1/3))
M)	2491	
Q)		((10^-1/3, or something))
S)		((1/2 * pi^2))
HH)	9...8...9....	
MM)	1015	
OO))	13	((Roman numerals))
SS)	4095	
VV))	15	
WW)	104	

+ + + + +

the following three sequences strike me as potentially ambiguous:

JJ)   something small plus 1 / 3 ———— *duuh — never mind!)*
KK)   something tiny plus (e^-1 + sin .03)
RR)   no single answer, if 5, 6, 7, 8, 9... interwoven with
                                                  4, 9, 5, 1, __

+ + + + + +

As time -- and, more critically, energy -- permit, I'll plug at these last 3; plus the remaining 15. Please let
me know ASAP roughly how many of my (40ish?) "solutions" are correct.

   Still can't think of a trivial solution to the Rosner Triangle Problem any better than alternating the
triangles left and right. (My earlier answer to this puzzle was based on the goofy assumption the triangles
had to be free to spin AFTER they inflated.)

Re the Cole Marble Problem. Obviously we have less information than we would like -- ie, by what method the marbles were chosen -- but if I have ten marbles of some unknown color and I randomly draw one million black marbles in a row, would any sane person give me fifty-fifty odds the next one will be white?

Probability has a subjective cast to it, as in the Monte Hall problem which Marilyn analysed in her column. (A blind-folded contestant has a fifty-fifty chance of picking the correct door; a knowledgeable contestant has a 2 / 3 chance of picking the correct door; a stubborn contestant has a 1 / 3 chance of picking the correct door.)

Assuming all marbles are white, what is the probability of picking ten black marbles? Zero. If nine are white? One in 10^10. Add up all these probabilities. The probability of picking ten black marbles if all ten are black is 1; divide 1 by the total. We'll call this the Probability Estimate. (Where's Von Neumann when you need 'im?)

A)   What if you don't know how many marbles are in the box, but you DO know that they are picked by flipping an unbiased coin? Let's say # of marbles = sum of three randomly flipped cubic dice (ie, 3 to 18, with gaussian distribution). B) Maybe even the # & types of dice are determined randomly. C) What if the marbles' colors are not determined by the toss of a coin, but picked at random from another jar filled with N-randomly-flipped-dice-# black marbles and M-randomly-flipped-dice-# white marbles...?

D)   ~~Taking the utmost in the probabilities birthdays are perfectly randomly scattered throughout the year,~~ how many randomly-picked people must you invite to your party to have at least a 50 % chance at least 5 invitees share a birthday? (Ignore leap year, and pretend that birthdays are randomly scattered throughout the year.)

E)   The notorious Party Problem: you want to invite at least five mutual acquaintances or at least five mutual strangers. How many guests must you invite? (I doubt there is any trivial solution, but go ahead & prove me wrong. Make my day.)

Some "cheater" sequences:

1, 1, 9, 6, 3, 8, 7, 3, 3, 4, 2, 4, 3, 3, 7, 5, 2, 8, 1, 7, 6, 3, 9, 7, 1....

(((from: 3.14159265358979323846264338327950288419716939937531...)))

7, 8, 8, 8, 8...   (((from: 2.718281828...)))

1, 1, 2, 3, 6...   (((root 2)))

As of September 24, I am an ISPE Fellow; I get a nifty diploma; plus I get to look down at all the mere Associates and Members. Or I could IF I were taller than they were.

My brother Brandon, froshing at Princeton, was heartbroken over his physics midterm: a mere A-, sob, sob. He's studying classical mechanics (Hamilton, Jacobi, Lagrange...); next semester he studies electrodynamics (Gauss; Maxwell; Einstein...) -- and maybe Analysis. No messy Quantum stuff until next year. Brandon's also working towards a degree in molecular biology. Knowing him, he'll probably go to Harvard Law and get a $ million-a-year job at Arthur Andersson when he graduates. The jerk.

A "puzzle" vaguely akin to "JUST / read-": "Just / ice". Altman may have used this in **The Player** (during that banter about Greenland vs Iceland, and "Icy" / "IC" / "I see").

Here is a spooky, *Seinfeld*-ian question: what do you do when a correspondent sends you a bunch of excellent but in-dire-need-of-revision stories --- then dies? Polishing them up is beyond my callow abilities; do I send them to a literary agent? I have so little money, but I hate to think this work will never see print. What would Max Brod do?

The Newton Symphony, of which I am the (second?) youngest member, just gave an all-Brahms concert, including the St. Anthony variations and the First Piano Concerto. I am now trying to assemble a

string quartet. Since so far I only have a cellist, I don't yet know if I'll be first violin, second, or viola -- assuming the turkey even flies.

What's with this Bob Dole? All he does is shoot down Clinton's ideas... He's like the bully in third grade who joins your game of basketball just to steal your ball: the guy can't have a good time unless everyone else is miserable. Does he have a life? Even his name makes you want to yawn: Bob Dole... Bob Dole. Sounds like Dull Bulb. Maybe his personality would improve if only he changed his name.

As for another Bob too much in the sun: why doesn't someone just tell him to write some revised diaries and pass those off as the originals? "Sure, these are mine," he says --no need to lie. You cut your hair, you grow new hair, it's still your hair. If the prosecutor calls on a handwriting expert, what's the poor schlump gonna say? "Yep, these're forgeries all right, but they're damned good. My guess is the same guy wrote 'em."

Regardless of what the papers say -- and never place your trust in a medium that comes off on your fingers like wet paint -- hands down Larry King won the free trade debate. I mean, no matter WHAT happens re NAFTA, Larry can still say, "See -- I told you so." There's a politician's politician for you: he's for both sides and against both sides all at the same time. He's a one-man Congress.

Pop culture vultures will hardly be shocked to hear that, according to recent studies, the average teenager -- or is that an oxymoron? -- can name more fashion models than past U.S. presidents. What did the pollsters expect? Most past presidents are... well... dead. Moreover, I think I speak for most young Americans when I say I'd rather see a movie with Natalie Shaw or with Drew Barrymore than with Richard Nixon or with Gerald Ford.

(Personally, I'd give my eye teeth for a date with *schaschuberwonderkind* Judit Polgar -- if they hadn't already been extracted when I got my braces. Which reminds me: the 'rents refuse to pay for my wisdom tooth extraction, so if any of you-all has some (preferably legal) ideas for how I can raise some quick cash, gimme a ring.)

I'd be more concerned for America if your average teenager could identify more Mutant Ninja Turtles than Presidents. Models are ubiquitous -- you can hardly turn on a tv set or open a magazine without being bombarded with images of Cover Girl Niki Taylor or Cover Girl Christie Brinkley or Cover Girl Rachel Taylor or Cover Girl this or Cover Girl that. You could cover the Midwest with pictures of all these Cover Girls. (Oddly enough, Cover Girls rarely have on much with which to cover themselves. Also, if you think about it, Cover Girls aren't cover girls, because, according to the dictionary, a cover girl must, first and foremost, be a girl, and Cover Girls are invariably women rather than girls (except in the British sense of the word "girl").)

Here's another question for the pollsters: does the typical American know more models or more transitive verbs? I'd be scared to learn the answer, though.

Yours (free while supplies last),

Kevin L. Schwartz

A JOINT APPEARANCE BY CHRIS LANGAN AND JOJO EINSTEIN
by Chris Langan and Jojo Einstein

LEROY KOTTKE:
I owe you an apology. I've had your description of "matrix logic"
for many weeks, but have done nothing. At the risk of sounding
"editorial", I offer the following excuses. 1. I must work a lot
during the summer months in case I can't find work in the dead of
winter. 2. I've been seeing to a prior obligation involving the
reduction, clarification, and acid-testing of certain mathematical
information for another member. 3. Most important, I want to make
sure your piece gets all the attention it deserves, and this will
require some commentary from me. Don't worry, your paper is safe.

GEORGE DICKS:
I have your request for the "CTMU issues" of *Noesis*. As you know,
our publisher Chris Cole is technically in charge of back issues.
If for some reason he can't provide the issues in question, I'll
do so, but it may take some time. I'm long out of copies and would
have to do the whole paste-up, redux, and printing routines over
from scratch. Touch base with me after you talk to him.
By the way, I don't know how tongue-in-cheek your latest contribu-
tions were *(Noesis* 85); in any event, I share your interest in
foundational mathematics. Has it occurred to you that the problems
you're "trying to solve" may require newer and more powerful proof
techniques (model theory, relativization, etc.) than those former-
ly in common use? In particular, the ones that contradict standing
proofs may be "valid by relativization" to distinct assumptions
which may or may not interact logically in light of axioms common
to both "proofs". The logical disjunction of these assumptions may
yield a negatable postulate (e.g., the parallel postulate, used to
distinguish between Euclidean and other geometries), or even inde-
pendent adjoint axioms (of course, as was mentioned in *Noesis* 85,
what goes for axioms can also go for definitions). Anyway, playing
with the standard logic can at least highlight its weaknesses.
Incidentally, can you clarify what you mean by *thrackle?* Although
you state that "any two edges either cross each other exactly once
or share one endpoint, but not both", your examples contain pairs
of edges whose elements do neither of these things.

CHRIS HARDING:
I appreciate your interest in the CTMU, and have also read you
with interest. However, I'm a bit confused by your statement that
"there still remains a difficulty". If you still have doubts after
reading both issue 82 and the material to follow, I'll be happy to
address, as best I can, whatever problems may seem to remain.
One specific problem you cite is the "Chomsky puzzle" concerning
the origin of language. The underlying structure on which language
rests is just that of the universe itself; the distribution of the
Γ-identity implies an inevitable evolutionary and functional homo-
morphism between language and the universe within which it evolves
and is applied. Thus, the semantically-invariant (syntactical) as-
pect of language is just a "relational endomorphism" of the global
reality which constitutes its semantical context, by which it re-
mains open with respect to locally-undecidable facts and processes
(generality being the source of its descriptive scope and ulti-

mately its descriptive resolution). This undecidability is associated with the kernel of the local Γ-endomorphism of any given linguistic cognitor. I.e., language is an *emergent* aspect of the universe whose genesis is contingent on a certain level of (extant or evolving) *complexity*, and whose evolution is subject to *natural selection* tending in the long run to favor maximum descriptive power with respect to global reality (if you want a very general example of the kind of "tool" needed to conceptualize this process, see my later discussion of a transductive algebra called a "3-qualiton", or relativistic 6-valued logic, as well as the following rudimentary definition.)

[Primitively, a *relational* (or structural) *homomorphism* is a mapping $k:R \longrightarrow k(R)$ of all R-subrelations $R; r_1, r_2, \ldots$ into images $k(R); k(r_1), k(r_2), \ldots$ such that $k(r_i : r_j : \ldots) = k(r_i) : k(r_j) : \ldots$ within a joint syntax S (where R is any S-defined relation and ":" means *S-relates to*). If $k(R)$ exists within R, it is a *relational endomorphism*, or internal self-correspondence of R (here, of $R = S = \Gamma$).]

The empyreon is algebraically self-similar on all deductive and inductive scales. Thus, the parts of a language can all be modeled as *transducers* which can be arbitrarily generalized and specified up to syntactic and semantical closure (i.e., within the scopes of their definitions). The result is again a transductive algebra whose quanta (morphemes) "process each other" by analogy to sensory or cognitive data from the language's universe. Note the inevitability of associating morphemes with physical transducers, e.g., PDP subnets; this alone forces an identification of linguistic and physical structures. I.e., to function "syntactically" together, morphemic transducers must be physically related in a way dynamically consistent with the physical contexts to be linguistically modeled. Obvious, isn't it? In fact, it's *supertautological*.

As you may have gathered, the CTMU evolved partially as a unified theory of natural and artificial intelligence. Thus, CTMU insights inherently possess a convenient explanative duality; having given a generalized mathematical model for the structure of the universe, *we have also given a mathematical model for the structure of language*. In other words, since language is the vehicle of mentation, the "mind-reality equivalence" of the CTMU translates to an equivalence of *language* and reality. The "Chomsky puzzle" has thus been solved, and "the structure on which language rests" specified with cold mathematical precision (while much detail has been omitted, all valid descriptions must begin with the most general aspects of structure; these have now been given in a way that is both original and mathematically-determinative).

A simplistic illustration may be helpful. Think of language as the silvering of a convex spherical mirror (your mind) suspended within a concave spherical mirror (global reality), the two exchanging continuous mutual reflections. The inner sphere is a structural (relational) endomorphism of the outer sphere. Each of them, as well as the pair together, is *transductive-algebraic;* the outer one is *empyreonic* and "contains" the smaller. The inner sphere, initially a naked surface, grows and accumulates its silvering epitaxially via reflective feedback, or growth and complexification (adaptive evolution). As it does, it resolves the fine structure of the outer sphere, and its image thereon, ever more faithfully. Finally, the reflections merge; self-knowledge and "objec-

tive" knowledge become indistinguishable. As is happening already,
mentation comes to be understood in terms of physics, and physics
in terms of mentation...i.e., as it is in the CTMU.
[Noam Chomsky, the linguist who invented the *Chomsky hierarchy* of
generative grammars, was primarily motivated to understand the
nature, complexity, and expressive power of natural languages. To-
wards this end, he developed a general classification of formal
(restrictively-defined) languages in terms of the automata capable
of recognizing or "accepting" them, thus defining a correspondence
between the grammar of a language and its minimal acceptor. So the
question is, where do natural (fully general) languages fit into
this classification...i.e., what if any kind of automaton is able
to tell whether a given expression is meaningful (grammatically
consistent) therein, and if so, of determining its relevance with
respect to syntax alone (irrespective of semantical content)?
To understand why the broadest form of this question involves the
process we have previously defined as *Γ-regression*, recall that
the CTMU ultimately identifies syntax and semantics by equating
the "syntaxes" of cognition and reality to reflect the ability of
natural languages to serve as their own metalanguages through ar-
bitrary semantical regression (thus, the way a metalanguage can be
used to talk about the syntax ("internal semantics") of an object
language as well as its semantical correspondence to external ref-
erents). So any automaton with a fully evolved command of natural
language would have to possess similar fluency in that of reality.
But if a full command of temporally-emergent reality can only be
achieved with the unfolding of time, then it requires an *oracular*
automaton. Oracularity, of course, is a pretty tall order in the
practical world of synthetic automata.
Meaningfulness is in a sense synonymous with *truth*, or the proper-
ty of inclusion in the set of *facts* generated by (and relativized
to) a given factual grammar. Unfortunately, Gödel (1931) has shown
it to be *undecidable* with respect to mathematical theorems with a
self-referential form that can be mirrored in more or less natural
terms, whose "meanings" relative to other theorems are thus uncer-
tain in any event. It follows that no automaton short of the whole
universe (i.e., short of Γ) can possibly recognize the validity of
every expression formulated in the master-language of logic and
mathematics. Because natural languages have logical structure and
descriptivity, this ultimately applies to them as well. This is
one reason why otherwise-intelligent human beings, nature's own
"natural language acceptors", can spend entire lifetimes puzzling
over the "true meaning" of what they have seen, heard, and read.
Chomsky's question, then, has practical "meaning" relative only to
various determinate subsets of natural languages.]
The allowance for undecidability in such manifestations as quantum
uncertainty is one way the CTMU differs from deterministic theor-
ies like General Relativity. In fact, GR is in principle a deter-
ministic subtheory of the CTMU, related therein to a nondetermin-
istic quantum subtheory. As for the differential equations of GR,
dependency relations of the kind they model can often be "regres-
sed" beyond a given order. However, such equations are confirmable
only within our ability to test their implications, and it can be
problematic to find relevant physical interpretations for higher-
order derivatives with respect to given kinds of phenomena and the

theories describing them. GR equations purport only to describe physical dependency relations involving certain basic parameters inherited directly from classical physics; that they do not yield a complete explanation of all physical phenomena was well known to their inventor, who spent the latter half of his life trying unsuccessfully to make them do so. Problems associated with theoretical infinities often devolve to a failure to properly interpret "infinity" in transductive terms.

ROBERT HANNON:
Here we go again. Just in case you feel that Chris Cole's specific objections somehow miss the mark, here are a few more for you.
1.a So I'm mistaken; you've "never looked for relativity to emerge from the LT". Yet, you call the LT "the entire mathematical premise of special relativity". Given that *theories* emerge from *premises,* what does this say about your self-consistency?
Einstein used the Lorentz transformation to do away with an assumption made by theorists trying to interpret Maxwell's partial differential equations describing Faraday's *electromagnetic field* in light of the principle of *Galilean Relativity,* which implies the law of *Galilean velocity addition:* v'=v-V, v=v'+V (where v is the velocity of a particle as measured by an observer A, v' its velocity as measured by another observer B, and V the relative velocity of A and B). The problem: Maxwell's equations, by making no reference to the observer's state of motion, imply that the speed of light c is the same for A and B (thus, if v=c=v', c a constant, then V=0 and no relative motion can exist between A and B; compare your own equation "x/t=c=x'/t'"). As well you might expect, this ridiculous contravention of reality was perceived as bad news, a major drag. To get around it, everybody simply assumed that the equations applied to a preferred frame that was "stationary with respect to the *ether",* a spatial medium through which radiation was supposed to propagate like shock waves through a more or less inelastic material. Unfortunately, then as now, nobody has ever seen, felt, or come up with the tiniest amount of evidence for the existence of "ether" as originally defined.
Einstein, realizing the difficulty of defining a "preferred velocity", sought instead to show that concepts like "ether" and "absolute motion" are inessential to physical theory and can be refined to reflect higher levels of observed or deduced physical invariance. This is important; all Einstein sought to do, by way of reconciling Maxwell's equations with Galilean relativity, was *reform or jettison an unfounded concept from physics.* His *second relativity postulate* does this by stating that c is invariant for *all* observers and sources of radiation regardless of relative motion (a trend culminating in the CTMU replacement of "ether" with a *distributed cosmic identity).* Fortune smiled on him; the once-anomalous Michelson-Morley experiment, of which he may have reasoned in ignorance, provided standing confirmation of his thesis. The "luminiferous ether", always tenuous, evaporated from the cauldron of theoretical physics like so much amyl nitrate (and I thank you for showing us where it went). Many other experiments have since gone exactly as Einstein predicted.
To cut it short, you are wrong in presuming the compatibility of Maxwell's equations, which imply c-invariance, with the Galilean

transformation, which implies the opposite.
b. Your statements that "relativistic logic is a fallacy" and that
"it is unnecessary to (logically) support the restricted principle
of relativity" really hand me a laugh. Here's a simple example,
possibly due to me, of a nontrivial relativistic logic. The under-
lying mathematical structure is called a *3-qualiton*.
Let there be 3 similar automata A, B, and C, each programmed to
recognize just two attributes, *self* and *not-self*.
A: "B and C are absolutely not-self, equal to each other but not
to me. So B equals C, A does not equal B, and A does not equal C."
B: "A and C are absolutely not-self, equal to each other but not
to me. So A equals C, B does not equal A, and B does not equal C."
C: "A and B are absolutely not-self, equal to each other but not
to me. So A equals B, C does not equal A, and C does not equal B."
Programmer: "Hah! Compared to *my* godlike Self, these machines are
dumb. Absolutely, my foot! Each machine says that it is not equal
to either of the others; the others say that it *is*. Each says that
the other two are identical; the others call this "absolutely"
false. As far as greater reality is concerned, these equalities
and inequalities have no "absoluteness" at all; I programmed them
into the machines as syntactic restrictions, and their truthvalues
exist *strictly relative to the A, B, and C-syntaxes!* Yet, the
"law" according to which these syntaxes function is precisely the
same, or *invariant* with respect to machine identity. This law,
the universal distinction between *self* and *not-self*, defines a
logical holor within which truthvalues of interpreted mathematical
relations are associated with distinct cognitive frames and vary
relativistically according to a *relativistic many-valued logic*.
And the beauty of it is, none of these machines can ever get a
handle on my own, *really* absolute perspective, because I made them
insensitive to the necessary distinctions."
[3-qualitonic truth table:

	A=B	A=C	B=C	~(A=B)	~(A=C)	~(B=C)
A:	F_A	F_A	T_A	T_A	T_A	F_A
B:	F_B	T_B	F_B	T_B	F_B	T_B
C:	T_C	F_C	F_C	F_C	T_C	T_C
Programmer:	F	F	F	T	T	T

Note the "majority confirmation" of the programmer's metalinguis-
tic truth-function by logical-holoric "merates" A,B,C, whose devi-
ations from it reflect a distributed cognitive restriction formu-
lated within the programmer's unrestricted cognitive language.]
Of course, machines cannot formulate specific mathematical rela-
tionships involving unrecognizable distinctions in the mechanical
sense. Nonetheless, we can analogize A, B and C to SR *or* Galilean
observers measuring each other merely by substituting *stationary*
and *nonstationary* for the logically-heritable top-level predicates
self and *not-self* respectively. Get the drift?
As for your second statement, saying that any scientific hypothe-
sis "requires no (logical) support" is asinine. Think about it.
c. What you say you said is exactly what I said you said.
d. If trying to "demonstrate that the entire mathematical premise
of SR simply vanishes upon algebraic completion" is not the same
as trying to "debunk SR", then you have some strange ideas about
the "truth" you claim to seek.
e. Now, let me get this straight. "C has not been found to be in-
variant except by circular logic", right? Then would it be safe to

suppose that "Michelson" and "Morley" were aliases of Laurel and Hardy, killing time after a pratfall down a wormhole? By the way, "circular logic" is when you reduce a mathematical model like the LT to absurdity by summarily refusing to interpret its variables as they must be interpreted in order to represent the context being modeled. For example, equating an open *variable* like $v = x/t$ with a *constant* like c (that's right: in the SR context, the term "velocity" doesn't apply *only* to light, but to all possible relative speeds from 0 to c of all physical entities and agencies. That's because the *relativity of motion,* basic to Galilean as well as Einsteinian relativity, implies that if you want to talk about how light "moves" with respect to observers, you must talk simultaneously about how *observers* move with respect to sources and particles of *light,* and you must allow for the entire range of motion. Do you grasp the *logic* here?) Variables might be able to take the values of constants, e.g. as limits, but constants are definitely not "variable". If you think that the "rules" of algebraic substitution and reduction are to be pursued at the expense of critical distinctions like this one, then you and I mean very different things by the term "algebra". (A little more concisely, your equation $x/t = c = x'/t'$ effectively but improperly "substitutes every frame for every other", reducing the number of terms in the LT equation by annihilating a *physical* distinction essential to both SR and classical physics, *velocity,* along with its *algebraic* image).

2. Your "simple algebraic arguments" appear simple in yet other ways. Let me see if I can explain it to you.

The set of possible velocital valuations of the LT forms a *transformation group.* Groups, along with other algebraic systems, are the bases of all algebraic equations. In the sense that they display algebraic closure, groups are *complete;* in the sense that a group consistently transforms each part or aspect of itself into another part or aspect of itself, it is *self-consistent.* The group structure of the LT makes it impossible to derive contradictions from the algebra *per se;* the algebra is "tautological". Einstein and his pals knew this, and so knew that their algebra could never contradict itself internally (as I know of mine, having taken this advantage to its utter limit with the CTMU logico-algebraic supertautology). Given that you've repeatedly used the word "algebraic" to describe your arguments, one might expect *you* to know it too... particularly since the Galilean transformation could never have served as well as it did unless it too had displayed group structure! It, too, was "algebraically invulnerable", both Maxwell's equations and c-invariance being proven on *physical* grounds. Only the CTMU, with its inductive identification of mathematics and physics, is by nature resistant to either kind of argument.

Once again, there were extremely good reasons to dump the Galilean transformation. One's spelled L-U-M-I-N-I-F-E-R-O-U-S E-T-H-E-R. This was a theoretical embellishment *for* which not the slightest scrap of evidence has ever been found, but *against* which countless experiments have weighed most heavily. All Einstein and SR did was *drop* a useless, unsubstantiated concept. Yet another is spelled C-A-U-S-A-L-I-T-Y P-A-R-A-D-O-X, meaning illogical, destructive physical inconsistencies in time. I'm sure Galileo would appreciate your loyalty, but even he'd tell you that enough is enough.

3. Things associated at a high level with the geometrodynamic identity of reality cannot change discernibly "from place to place or time to time" *within* time. But that's nothing compared to your assertion that "c-invariance does not imply that c is a limiting velocity unattainable by any real body", particularly in light of your assumptions. I.e., if Galilean relativity applies, and the observer can go as fast as he likes, then why can't he travel at, say, 10c towards the source of an approaching luminal wavefront, and measure the velocity of the wave as "11c"? If the relativistic Doppler equations are accompanied by no unconditional transformation of space and time, Galilean relativity remains intact and you can in principle outrun a beam of light. But if so, then the velocity of the beam, *again* by Galilean relativity, depends on your own motion and *can't* be invariant. So the *invariance* of c makes it unconditionally *limitative* as well. You've encountered a *logico-algebraic symmetry* between observer and object which spans your entire range of motion and prevents you from exceeding the *invariant velocity* you're measuring, which is thus a *limit*. How much clearer could this be?

4. You now have your "algebraic proof" that you are algebraically in error. I.e., it has now been demonstrated that you have wrongly confused algebraic variables with constants, wrongly ignored the group structure of the LT, wrongly ignored the logico-algebraic symmetry of relative velocity in both the Galilean and Einsteinian senses (by stating that you can analyze the velocity of photons relative to observers apart from that of observers relative to photons and their sources), wrongly denied the relativistic-logical basis of the algebra of invariance (as well as other kinds of mathematics), and wrongly declared the Galilean transformation algebraically consistent with Maxwell's equations re the value of the constant c. Come to think of it, that makes at least *five* proofs, doesn't it? Incidentally, you have "defeated" nothing. You have offered no alternative explanations for experiments confirming SR, and you have designed no faster-than-light drive.

5. Relative spatial and temporal compression of specific frames is *exactly* what the LT is about. The LT may be "Euclidean" in its Pythagorean basis, and frames may be *internally* Euclidean, but this internal symmetry is bought at the price of distinctly *non-*Euclidean distinctions among frames. Geometries have algebraic structures; Euclidean and Lorentzian geometries are not algebraically equivalent in the broadest possible sense. Again, you have erred *algebraically* (algebraic proof number 6). Algebra, you see, is more than monkey-wrenching equations to suit your viewpoint.

You may or may not be aware that Einstein's theories superseded what was sometimes called "the electromagnetic view of nature", three of whose proponents were Lorentz, Wiechert and Wien. Just as you believe that electromagnetism is the only physical force, they sought to derive all physical laws from Maxwell's equations. In fact, the "electron theory" of Lorentz not only paved the way for Special Relativity, but inspired Minkowski to create the four-dimensional *spacetime* model fundamental to GR. Your path was tried and exhausted early in this century by people with considerable mathematical talent and expertise. There is nothing in your *Noesis* calculations to suggest that you are their superior. You are thus extremely likely to be wasting your (and my, Cole's, etc.) time,

unless you are presently able to name the key distinctions between
your work and theirs. So where hides the mathematical *legerdemain*
which elevates you over them? I am not, of course, talking about
schoolboy errors like those I've just caught you in.
Since I myself have used little more than high school algebra and
physics here, I've had plenty of time to go over my arguments. So
when you imply that SR is the the last refuge of bumbling fools
unable to do elementary math or grasp physical phenomena – and,
your disclaimers notwithstanding, that *is* what you imply – you're
calling me, other members of this group, and thousands of top-
flight physicists and algebraists stupid. And that, Bob, is *really*
stupid! If you won't listen, then you'd better at least come up
with tighter arguments than I've seen so far.
For what it's worth, I can tell you're not a born fool. But I
believe that you're playing yourself for one. If you insist on do-
ing that, I obviously can't stop you. But don't play me for one
too, because I'm already tired of competing with you for air time
when you couldn't care less what I or anybody else has to say.
Admit it or not, you just went head-to-head with me again, and
again you lost. I go through this with you because I know that
great strides have been made by people who, like you, are unafraid
to swim against the tide. But your arguments don't "swim", they
sink like cannonballs, and whenever somebody points this out, you
simply pull out another cannonball and say "no, because here it is
again!". You're singlehandedly railroading a free journal into a
state of censorship, and I'm not the only one who doesn't like it.
Can't you be a good "guest" and give us a break here?
What I mean is, don't grab a pen and immediately start scribbling
an outraged response. Instead, do what I do. *Read* and *analyze*
the points against you. Act as your own critic; try to attack your
own viewpoint from every possible angle before sticking your neck
out again. That way you'll know you can cover your action. Because
if you don't, I'll have to turn this whole matter over to Albert
Einstein's namesake and comedic heir, *Jojo.* Even now, he glares at
me through the diaphanous membrane screening this Pollyanna reali-
ty from the mean, pulsating streets of Gotham, oozing raw contempt
for what he derides as my excessive delicacy. In fact, he assures
me that only my waning desire to protect you prevents a swarm of
pies – cherry, blueberry, and Barbasol – from flying towards your
belligerent face right now! Won't you spare yourself the nightmare
of living burial under a mushy mound of foamy fruit?
Since I hesitate to leave you thinking I'm as surly as you are,
I'll wrap this up on a brighter note. There is one aspect of your
work which can be loosely interpreted in your favor. This involves
your absolute insistence that the LT applies "only to light", im-
plying that the meaning of "velocity" varies *qualitatively* between
photons and other kinds of object. This is not as "crazy" as some
might suppose; the fact that one kind of velocity is selectively
"invariant" with respect to the other does seem to signal a quali-
tative (logical) distinction. This is in fact a paradox, related
to other kinds of logical paradox in the physical interpretation
of the LT. The extended physical model required for its resolution
was sketched in *Noesis* 79 (Some Miscellaneous Implications of CTMU
Structure). In this model, light "stands still" in a sense consis-
tent with the temporal nullity of lightlike worldlines in Minkow-

ski space, but in a way physically indistinguishable from standard
motion within particular frames of reference (thus, light does not
move "in time", but is that on whose "invariant motion" time is
defined). It can thus be identified with the "master-clock" of the
cosmic "automaton". [A final admonition from Jojo: "Repeat just
one of those errors just one more time, pal, and both you and your
theories are as washed up as a school of Coney Island whitefish!"]

G. ARTHUR MORRISON:

I don't know quite what to make of the nonmathematical part of
your letter in *Noesis* 85. "From what I've seen..." (in *Noesis*)
seems rather all-embracing. Specifically, it is unclear whether
the editorial policy you advocate was meant to apply only to *your*
contributions, or to mine as well.
May I therefore request that if you want Rick to "please continue
his gentle fun-making", you specify *yourself* as his target? That
way, if he has any further comments on *my* contributions, I can
address myself to him alone. And just in case you need the lesson,
you too can learn how "gentle" it feels to have something you may
care about, and in which you may have much invested, casually be-
littled without a shred of comprehension and in a way obstacular
to the comprehension of others.
Since you cite the renowned recreational mathematician Martin
Gardner, you may be interested to know that, according to a letter
he wrote me, he finds nothing to criticize about the CTMU (see
Noesis 45, p. 1). He says nothing glowing about it - which is to
be expected, given his well-known circumspection about theories
with outstanding philosophical implications - but neither has he
found an error in it. Nor will he.
Maybe you believe yourself a "better mathematician" than Gardner.
The CTMU has a carefully defined mathematical structure. Perhaps,
instead of making apocryphal remarks seeming to cover everything
in *Noesis*, you would consider sharing your mathematical insights
on the CTMU, with special attention to your precise reasons for
deeming it needful of "fun-making" and contextual editing.
Otherwise, may I ask that you couch your future remarks in a way
less amenable to misinterpretation? Jojo has *your* number, too.
And by the way, *Noesis* is nominally a joint venture. Rick only
arranges journal contents and usually offers scant commentary. If
you really find *Noesis* "entertaining and enlightening", you prob-
ably shouldn't focus your appreciation so narrowly.

KEVIN SCHWARTZ:

Hi, kid, the name's Jojo. *Jojo Einstein.* I have good news and bad
news for you. The bad news is, it's *cruel-to-be-kind time.* So bend
over and take your whacks like a *mensch.* The good news is, you're
only getting three whacks. Yeah, they'll smart, but smart---es and
smarting ---es go together like rap music and earplugs. So get set
to *wake up and smell the glue, kid.* Now ---ume the position!
1. The *Arts* Editor of the *Times* happens to be a close personal
buddy of a close personal buddy's buddy, so I know what I'm talk-
ing about. Editors that don't read their own newspapers don't stay
editors. They get fired, sued to death, or people just quit buying
their flaky, incoherent rags. If they print a review of a play,
concert, exhibition or even a spanking like the one I'm giving you

right here, right now, they either *read* it themselves, or they have a staff member read it. Bottom line: if you ain't got a staff or even a member to play around with, you drop your Pee-wee Herman routine and *do the reading yourself*. Like my *amigo* Chris Langan did when *he* was editor (whoops - just the reading part, *amigo!*). Incidentally, in case you wore yourself out hefting your copy of *Noesis* and crapped out on the title page, Ricky didn't just print Langan's work. He *jetéd* to his keyboard and *tap-danced all over it like a prima ballerina.* and if you're gonna do that to a guy like Langan, you better wrap your pipestem ankles. Maybe you thought he was ad libbing, but I'm tellin' you: Gene Kelly *read* "Singin' in the Rain" *before* doing that bit with the fedora and frog-flippers.
2. Now, lemme get this straight. Like Rick, you believe in judging theories by context, right? Hey, for all I know, maybe you think Mitsubishis and VW's oughta be re-called and tried for war crimes! But if publishing a valid theory in *Noesis* is like grinding pearls of wisdom for hogslop, how come *Noesis* is good enough for all that *sensitive poetry* you pour your throbbing little heart into?
3. Over the last four years, my *amigo* Langan has been discussing free will in an advanced-algebraic, post-relativistic setting. So when you pontificate on the subject à la *Lewis (1,000,000 BC) Carroll.* you resemble that tiny little fossilized bug they relieved of its lunch in *Jurassic Park.* Kid, do yourself a solid and quit trying to be the World's Greatest Authority on Everything. Langan can make such a drooling, knuckle-walking simian outa you, you'll wish you'd stayed in Wonderland with your little friend Alice.
Okay, junior, you can pull up your britches now. But straighten up and fly right, okay? Or we're gonna have to stage a repeat performance, and I'm gonna have to invite the *Arts* Editor of the Times. Have I made myself *Clearasil?* Now here's a little magic trick for you. See this? This, like that bulbous growth atop your neck, is an *egg.* See that on that huge sweaty foot of yours? That's a canoe ...er, a *shoe.* Now, you *squooshy wuss* you, why don't you put *this* egg in *that* shoe and *beat feet* until you get either a hot spicy omelette or home safe and sound so mommy can dry all four of those big glassy peepers for you? (By the way, the only reason you ain't getting more of a fanny-paddling here is because my idol, Chris Langan, appreciates getting lumped in with Kelvin-through-Hawking. How's about a little less editorializing and a lot more of *that?)* Just so there's no hard feelings, have a lollypop and go comb the beach for some balloons.
But first, I just wanna make sure we're clear on something. Since it's the kind of thing that requires a little team spirit, I want you to imagine that *The Star Spangled Banner* is playing in the background. Kid, the world is fast becoming a Malthusian cesspool, and the danger coefficient's rising exponentially. We got plagues, famines, pollution up the yin-yang, and wars and warmongers stock-piling biochemothermonuclear hand-buzzers and whoopie cushions like Carter stockpiles little liver pills. We got a trillion-plus national debt and a huge underclass eyeing everybody else's plates like coyotes after a tough winter (that's right - and I oughta know, because I'm a card-carrying member!). Used to be, we could spread out or redistribute problems to avoid solving 'em. But our *cucaracha* reproductive routine, uncramped by any whisper of quality or quantity control, is on the verge of reducing "sociology"

to bin-packing algorithms and canning methods, and looks good for
turning botany, zoology and ecology into branches of *paleontology*.
When the population is six billion and exploding, "redistribution"
means wiping a dirty diaper with a greasy rag and callin' em both
"clean". That's why, while none of this is news, things are worse
than ever. We're running out of leverage, a bunch of deadbeats who
can't pay Paul without robbing his Mounds-bar homeboy Peter. And
as if that ain't bad enough, various HiQ-type loudmouths are still
assuring the great unwashed that high technology is gonna save our
bacon even as funding for basic science, the most productive kind,
is being tapped dry to corner the market on social band-aids! It
takes dough to do research; just ask the original NASA eggheads
and those sad-sacks from the Texas Supercollider project.
In these times of peril, our only advantage is our intelligence.
Not just a sleazy, streetwise fluency in doubletalk, but the savvy
to tell doubletalk from real insight and play the best odds. Your
IQ isn't a license to toady expediently up to authority figures
like some kind of grade school apple-polisher. It's a *priceless*
resource, and you got no right to squander it on the sort of eris-
tic, sophistic, and half-baked opinions perenially passed off as
"thoughtful and well-balanced viewpoints" by oilbag politicians
and High-IQ journal debate captains. High intelligence is "on loan
from God", kid. If you can't use yours to benefit mankind directly,
at least don't use it to get in the way of them that can.
Nobody knows if you're smart enough to get into the Mega Society.
But you're evidently smart enough to get your letters printed in
its journal, at least under the *status quo*. Now, everyone's been
assuming that you've been spouting off at such length because you
aspire to membership. So there's a little fact you oughta get a
grip on. While passing an IQ test is the *de facto* criterion for
membership, there are unspoken but equally important criteria in-
volving your ability to successfully *apply* your IQ to the matters
we discuss, and in the process, to avoid making yourself look like
a ninny. So far, you haven't done so hot; that's why *I* got turned
loose on you. So maybe you just can't cut it. But if you can, you
better hurry up and prove it. Time waits not for man nor boy nor
baboon, and we have plenty to do here. So if you're gonna give it
a shot, stow the spitwads and saddle up a bullet. *Capiche?*
Okay, cut the music. And get well soon, little buddy!
[Sorry, Kevin. I tried, but you just can't stop this guy! I actu-
ally rather *like* your poetry. Jojo Einstein is simply the pre-or-
dained, hard-as-a-rock fate of anybody who makes thoughtless (and
especially, repetitive) errors in *Noesis*. While initially revealed
by flawed criticisms of the CTMU, the need for Jojo has been amply
confirmed in other areas. Given his mandate as the Official Mega
Society Mascot, the irrepressible clown therefore feels free to ex-
press himself as tastelessly as he pleases, and in fact as he *can;*
if being the butt(!) of his humor were nothing but fun, it would
be no deterrent. As his creator, I can only point out that Jojo's
targets are the authors of their own discomfort. I.e., you might
as well buy front-row seats for Don Rickles or Dice Clay as care-
lessly run your mouth in *Noesis*. (An obvious rule of thumb: though
generally vigilant, Jojo is <u>super</u>-alert for (a) lame criticisms of
me/the CTMU; (b) remarks supporting lame critics of me/the CTMU.)]