NOESIS

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EDITORS COMMENTS—In this issue, Chris Langan accuses me of jumping the gun with an election. This accusation is reasonably accurate. With that in mind, I'm extending the election deadline a little. You are choosing among Chris Langan, Glenn Morrison, and Rick Rosner. Submit your choice to Jeff Ward, 13155 Wimberly Square #284, San Diego CA 92128. Choices postmarked on or before December 1 will be counted.

REMINDERS—Dues are two dollars an issue. Make checks payable to Rick Rosner, *not* Mega or Noesis. You still get an additional issue for every two pages of published material. **SEND LOTS OF STUFF.**

RON HOEFLIN included this note with the Ultra Test—**You may publish the test in *Noesis*, but members and subscribers who take the test should indicate that fact so that their scores will not be used to norm the test, since Chris Cole revealed some of the verbal answers.**

Noesis has been almost O.J.-free. (Celia Manolesco just sent a couple O.J. jokes—"Knock knock." "Who's there?" "O.J." "O.J. who?" "We needed you for the jury, but it's too late now.") However, now that the trial's over, does anyone have some thoughts on the whole mess?

J. ALBERT GEERKEN
POST OFFICE BOX 293
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August 31, 1995

Richard Kapnick, Editor
10741 Moorpark Street
North Hollywood, CA 91602

LETTER TO THE EDITOR

Dear Rich:

You may remember that in the April, 1994 issue of Telicom you published my "mystery" number series stated below:

15 1/4 6 1/2 3 15/16 2 15/16 ?

Here, at last, is the solution:

61 1/4 52 1/8 63/16 94/32 46/64 (= 23/32), Ans.

Note that the numerators in the above line are the transposed digits of 16, 25, 36, 49, and 64, representing the suares of 4, 5, 6, 7, and 8. As a Frenchman would say: "simple comme bonjour."

I wish to apologize for the long time it took me to publish my solution to this number series conundrum, but I have valid reasons for my tardiness. First, I had to give ample time to the readers of other HiQ societies' journals to which I had sent the problem, and secondly, I have bee coping with several afflictions to which octogenarions (plus 7) are unfortunately heir. They are serious enough to prevent me from any further contributions to TELICOM, I am sorry to say, or carry on correspondence with ISPE members. So, a hearty farewell to all, and I'll be looking forward to receiving your publication with the same happy expectation as always.

Sincerely,

P.S. Sorry about the word "bee" above, which, I am sure, needs no explanation, which goes for "suare."

J. Albert Geerken

Introduction: The Ultra Test is an untimed, unsupervised intelligence test for gifted adults that is intended as an admissions test for various high-IQ societies, of which the test designer founded four--Mega, Prometheus, OATH, and TOPS--and currently serves as editor and sole officer for the latter two. These goups have percentile requirements at the 99.9999, 99.997, 99.9, and 99th percentiles, respectively. The test designer's Mega Test was published in the April 1985 issue of Omni magazine and his Titan Test in the April 1990 issue of that publication. Both of those tests are still in use, but the test designer hopes eventually to combine the best problems from all three thests to form one or two higher-quality tests.

Instructions:

(1) You may use reference books but should not consult anyone.

(2) There is no time limit, but 100 hours spread over one or two months proved to be the optimum for the Mega and Titan tests.

(3) There is a $25 scoring fee, payable to the test designer, "Ronald K. Hoeflin," at P. O. Box 539, New York, NY 10101, U.S.A. Checks or money orders must be made payable in U.S. dollars through any U.S. bank or post office.

(4) Until March 15, 1996 you may deduct $1 for each score you can report on any of the 13 tests listed on the answer sheet, or $2 per score if you can supply a photocopy to verify your report, but in no case can you pay less than $12.

(5) You will receive a raw score report almost immediately. Verbal items count one (1) point and nonverbal items will count two (2) points, so your maximum score would be 72. There is no penalty for wrong answers, so your minimum score would be zero (0). When

sufficient responses have been received, you will receive a graph showing how your score compares with those of other participants, plus a chart correlating raw scores with IQs and percentiles vis-a-vis the general population. I hope there will be enough data for this purpose by March 1996, but in no case will I delay sending you a final score report beyond June 1996.

A comment on verbal intelligence: Some people wonder about the value of verbal items as a measure of "intelligence," since trying such items seems to involve little or no intellectual effort. From the purely statistical standpoint, many studies repeatedly showed that verbal intelligence, including the sheer size of one's vocabulary, has one of the highest correlations of any type of test item with overall intelligence as measured by tests containing a wide variety of test items. See for example the book Intelligence in the United States, published around 1958, for ample documentation. On the purely intuitive level, one might say that learning a language, including vocabulary, is for the child like decoding hieroglyphics. The brighter child will master this decoding process far more readily than the average child. Later, of course, one can artificially boost the size of one's vocabulary, but cleverly designed tests of verbal intelligence can get around this problem by relying on somewhat atypical verbal items that one would be unlikely to pick up through a "vocabulary improvement" course but that a gifted child would be likely to have picked up if he has been reasonably inquisitive--and isn't inquisitiveness an important part of intelligence? Finally, to use a computer analogy, a powerful computer without adequate software (analogous to verbal intelligence in humans) would be relatively unproductive no matter how powerful the hardware.

Verbal Problems

Find the best solution for each of the following analogies. Example-- CLEAR : CLOUDY :: TRANSPARENT : ? The best answer would be TRANSLUCENT. Misspellings will be given half credit if otherwise correct. The final authority, wherever possible, for correct spellings will be the Merriam-Webster Collegiate Dictionary, 10th edition.

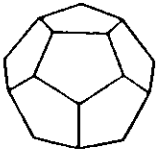
1. Once : Twice :: Bitten : ?
2. Amphibian : Salamander :: Political district : ?
3. Riddle : Mystery :: Mystery : ?
4. Penny : Thrift :: Pinch : ?
5. 2.54 : Inch :: 454 : ?
6. One-eyed : Cyclops :: Two-faced : ?
7. Swiftness : Velocity :: Stickiness : ?
8. Say : Hear :: Imply : ?
9. Space : Hyperspace :: Vector : ?
10. Wind : Rain :: Typhoon : ?
11. Scenic : Picturesque :: Roguish : ?
12. Inward : Outward :: Infection : ?
13. Strong : Herculean :: Polymorphous : ?
14. Sophisticated : Wisened :: Wrinkled : ?
15. Wicked Woman : Witch :: Bad Taste : ?
16. Silly, Not Obese : Fatuous :: Offensive, Not Loud : ?
17. Column : Row :: File : ?
18. Humbug : Bach :: Seek : ?
19. Coals : Newcastle :: Rough Beast : ?
20. Enlightenment : Illuminati :: Knowledge : ?
21. Pride : Prejudice :: Sense : ?
22. Of Ten : Factor :: Of Magnitude : ?
23. 2.54 : Inch :: 3.26 : ?
24. Pocus : Hocus :: Pokery : ?
25. Eggs : Grading :: Wounded : ?
26. Mock : Mach :: Oiler : ?
27. Go : Gang :: Awry : ?
28. Tall, Dark : Handsome :: Nasty, Brutish : ?
29. Split Apart : Cleave :: Stick Together : ?
30. Image : Idea :: Hallucination : ?
31. Hairpiece : Wig :: Party : ?
32. Tom : Harry :: Gold : ?
33. Them : Us :: Eskimo : ?
34. Wedding Assistant : Best Man :: Movie Production Assistant : ?
35. A, AB, B, BO, O : BO :: A, C, G, T, U : ?
36. Plus Ultra : Ne :: Ne Sais Quoi : ?

37. If the four sides of a square consist of rods each of which is painted white or black, six distinct color patterns are possible: (1) all sides white, (2) all sides black, (3) one side white and the rest black, (4) one side black and the rest white, (5) two adjacent sides white and the other sides black, and (6) two opposite sides white and the other sides black. Suppose that each of the twelve edges of a cube is a rod that is painted white or black. How many distinct patterns are possible if any three of the rods are painted white and the other nine are painted black?

38. Suppose that the figure at right consists of nine rods of equal length joined together to form four equilateral triangles of equal size. If two of the rods are painted white and the remaining seven rods are painted black, how many distinct patterns can thereby be created?

39. Suppose an octahedron consists of twelve rods all of equal length and forming eight equilateral triangles --the eight sides of the octahedron. If any two of the rods are painted white and the rest black, how many distinct patterns are possible?

40. Suppose that the figure at right consists of thirty rods of equal length that form twelve pentagonal figures of equal size, which form the twelve sides of a regular dodecahedron. If any two rods are painted white and the remaining twenty-eight are painted black, how many distinct patterns are possible?

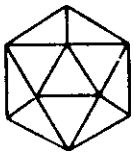


41. Suppose an octahedron consists of twelve rods all of equal length and forming eight equilateral triangles --the eight sides of the octahedron. If any three of the rods are painted white and the rest black, how many distinct patterns are possible?

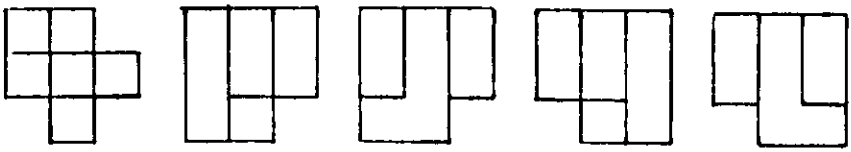
42. If lightbulbs are put at two different corners of a square, two distinct patterns are possible: one in which the bulbs are at opposite ends of any side of the square, and one in which the bulbs are diagonally across from one another. If lightbulbs are put at four different corners of a cube, how many distinct patterns are possible?

43. If lightbulbs are placed at two different vertices of a regular dodecahedron, how many distinct patterns are possible?

44 Suppose that lightbulbs are placed at any three distinct vertices of a regular icosahedron (illustrated at right). How many distinct patterns can thereby be formed?



45. The five figures shown below represent the appearance of a solid, opaque object as seen from five of its six sides. Each line shown depicts a side of the object that is perpendicular to the plane of this page. The object was constructed by gluing together a number of identical cubes so that at least one face of each added cube precisely and entirely covers and is everywhere contiguous with one face of a previous cube. Draw the sixth view of the object.



The following number sequences are each based on pi, whose first fifty-one digits (counting the initial 3) are as follows: 3.14159 26535 89793 23846 26433 83279 50288 41971 69399 37510. Find the number that best continues each of these sequences:

46. 3 4 5 5 7 5 1 9 8 9 ?

47. 2 2 3 2 4 10 1 7 4 4 4 ?

48. 8 6 10 15 16 17 13 14 13 ?

49. 6 13 15 31 39 43 45 ?

Draw the figure that should fill the blank (identified by the question mark) in each of the following series:

For purposes of correct orientation, this side is the "top" one.

END OF TEST

ANSWER SHEET

Your name and address (please print):

_____

_____

_____

Your scores on previous tests (if any known):

Mega Test (raw score only): _____

Titan Test (raw score only): _____

Langdon Adult Intelligence Test (IQ only): _____

Any other Langdon test (specify test and IQ): _____

Cattell Verbal (Mensa test)(IQ only): _____

California Test (CTMM) (Mensa test) (IQ only): _____

Stanford-Binet (IQ): _____

Wechsler (specify which test) (IQ only): _____

S.A.T. (verbal + quantitative aptitude): _____

G.R.E. (verbal + quantitative aptitude): _____

Miller Analogies (raw score): _____

W87 (Harding-ISPE test) (give percentile): _____

Other test (specify name and percentile): _____

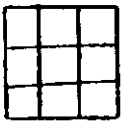
Verbal Problems
(please print)

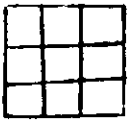
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____

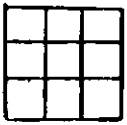
37. ____
38. ____
39. ____
40. ____
41. ____
42. ____
43. ____
44. ____
45. (draw your answer below)
46. ____
47. ____
48. ____
49. ____

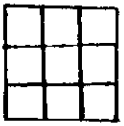
45. (Note: Any orientation is acceptable for this problem.)

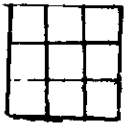
(For purposes of correct orientation, take this side as the "top" one.)

50. 

51. 

52. 

53. 

54. 

Biographical Information

Age: _____

Sex: M F (circle one)

Highest educational level attained: _____

Native language:

English: _____ Other (specify): _____

Hgih-IQ society memberships:

Mensa	Now	Previously
Intertel	Now	Previously
Top One Precent Society	Now	Previously
ISPE	Now	Previously
Triple Nine Society	Now	Previously
One-in-a-Thousand Society	Now	Previously
Prometheus Society	Now	Previously
Four Sigma Society	Now	Previously
Mega Society	Now	Previously
Others (specify): _____	Now	Previously

Regarding the "Election"...

As the high-functional readers of *Noesis* are by now aware, Rick Rosner has called for an election. While I originally suggested the idea, it had been my intention to wait until Rick's next serious transgression. Instead, Rick has decided to jump the gun. The reason is obvious: sensing that this is perhaps the one electorate in the universe sufficiently irrational to declare him its favorite without committing him to any particular level of performance, Rick is confident that he can easily obtain a "democratic" mandate to do precisely as he chooses in the future.

Now, I happen to agree with Rick. The roster of the Mega Society does indeed contain a high percentage of eccentrics, and Rick has traditionally had some powerful support - e.g., Cole and Hoeflin, to name but two. These three luminaries have all, at one time or another, propagated theories which were logically dismantled by me: respectively, "metaprimes", "Bayesian regression", and "the purposive act" as a basis for metaphysics. Perhaps not uncoincidentally, they have all failed to admit that they were wrong, and have then tried to create the impression that the material I write is too complex and unreadable to be worth acknowledging.

Pride is a heady emotion. It is hard to begin with the premise that one has a regal IQ, and then - in the course of fair argument - to have one's insight called into question. If one is wrong, the easiest way out is indeed to claim, or to make it appear, that his critics are so deluded that they merit no response. If one's audience consists largely of people with their own reasons not to be too concerned with the logical technicalities of their pet topics, this tactic can actually succeed. And so it has here, largely because certain members, and unwelcome nonmembers, have so stridently or artfully cloaked their irrational opinions in "reason" as to make everyone else's reasoning appear suspect.

However, while such tactics can enable one to "win" against superior insight and may thus seem rational from a personal standpoint, they are anything *but* rational from an *organizational* standpoint. An organization whose members routinely exploit this tactic is unworthy of a second glance by anyone except a psychologist or social scientist specializing in group irrationality. This is exactly where the Mega Society stands today, and we all know it.

The topics usually discussed in *Noesis* are sufficiently complex that any simplistic approach to them is likely to be wrong. Otherwise, they would already be understood, and we'd have no reason to discuss them. Denying anyone a fair hearing because he makes verbal allowance for such complexities is dishonest. As I've done for the last six years, I now stand by the solution of each and every problem I've solved. That includes Newcomb's paradox and even the four-color problem, with respect to whose solution all of the above remarks would seem at this point to apply.

Now, while I can't condone an editorial election which includes no editorial guidelines, I *am* going to take account of its results. I've tried very hard to help this group achieve its original aims, but I do have other outlets for my energy and ability. So, unless you want to see these past few years of organizational decline become an eternity, vote your consciences.

CHRIS LANGAN

Dear Bob Dick -

Your letters in *Noesis* 111 mention spitting five times (non-metaphorically), use the invective *stupid* or a variation three times, and graciously award me my very own "Dunce Cap". Your restraint is admirable, especially towards one whom you accuse of having none.

Ordinarily, I'd have responded to you point by point. However, in my experience with Robert Hannon - every minute of which I rue - this did no good. Since there is nothing sufficiently logical in your letters to let me make an easy distinction between the two of you, I'm afraid I'll have to treat you alike (at arm's length).

The one possible exception involves Newcomb's paradox. Newcomb's paradox was invented by a physicist, William Newcomb. On the other hand, it was *not* invented by a philosopher, psychologist, game theorist, or politician. One might therefore hazard the following guess: Newcomb's paradox is not *primarily* about philosophy, psychology, game theory, or lying and cheating. It is about *physics*. Specifically, it is about the *physical* assumptions used to justify two different "rational" decisions, *both* of which are based on conventional decision-theoretical rationality...i.e., maximizing a utility function equalling money times probability. Other utility functions do indeed exist, but that's another matter.

Remember, there is nothing about the problem which *prevents* you from taking any anti-cheating measures you deem fit. If you fear that Newcomb's Demon is going to burgle you away to Fool's Paradise, you're free to to use whatever measures you choose in order to foil him (build the table and boxes yourself, hire guards, put him in thumb cuffs, etc.). If, after all this, he can still get over on you, then Newcomb and I humbly submit that before *you* try to cheat the *paradox* by changing its thrust, you should take the time to question your habitual assumptions about physical reality.

Now, if you're able to work out the implications, you'll see that it all boils down to *exactly what I said it does*. If you still can't figure that out by yourself, just consult your confidants. I respectfully refer, of course, to Buddha, Moses, Mohammed, and the Pope, all of whom you apparently know well enough to oppose to me.

You advise me not to take your "mirth" too hard. Typically, I hold my own in check with regard to people whom I regard as emotionally vulnerable. Because you bravely admitted that you spent time in a mental institution, you were included. But now that I see how little my forbearance was appreciated, I have less reason to be solicitous of your feelings. So you'd better stow the mockery. I don't have that much patience any more, and you're not that good at it.

Incidentally, this isn't Mensa. It's the Mega Society. Our members are supposed to be *smarter* than most "Mensans". Thanks to members like you, that idea has fallen flatter than a flapjack on Jupiter. You can't win a battle of wits by'being obstinately dense, and you make us all look bad by trying. Reading the contributions of other members is not a sin. If you *can*, I urge you to start.

Yrs. Trly., Christopher "he's not heavy, he's my brother" Langan

Richard May:

I appreciate your acknowledgement of your ontological debt to me for "the first cause". However, just to avoid confusion, I'll remind you that first causes are not my only relevant contributions. My various writings, including the articles and bylaws of the nonprofit religious-purpose corporation CTMU (completed in mid-1992), go into what you might consider an astonishing level of logical detail regarding the issues you discuss in your letter.

As any long-time reader of *Noesis* is in a position to know, I was aware of these questions years ago, before most of the authors you mention had managed to formulate them. Because they can be expressed in the language of logic, I realized that they all had a convergent model-theoretic (logicomathematical) solution, and that if I could discover what that solution was, then I'd be responsible for developing its religious implications. I've been taking this responsibility seriously for quite a while now, and have not been entirely without success in meeting it.

Dawkins, Barrow, Tipler, Rucker, and Penrose may be celebrated in other fields, but that doesn't mean they can offer you a state-of-the-art platform from which to launch theological investigations. Only one person can do that, and you're reading his letter. If you choose not to believe me, then do as you please. But there is just one coherent logical framework that will support answers for all of these questions simultaneously, and it is *not* easy to formulate. If you try to rediscover it on your own, you stand a good chance of coming up dry and fooling yourself wet.

Remember, language is the tool you're using to theorize, and the technical definition of language is starkly logical and mathematical in nature. Thus, the joint language of logic and mathematics is the most general language of all, and any general theory purporting to unify cybernetics and religion had better be formulated primarily within it. The authorities you cite have backgrounds in areas other than mathematical logic, and have approached the problem of religion from other angles. They are not devoid of insight, but none of them alone has what it takes to complete the synthesis (they're famous *not* because they're infallible, but because - unlike me - they received help at many points during their careers).

Because I value your participation in the Mega Society - as I do that of all rational and well-meaning members - I invite you to go over some of my past contributions. The issues they address are complex, and it will take some work to understand them. But if you do, they will provide you with an unparalleled degree of insight into the *logic* underlying cyber-religion. All paths may lead to Rome, but you'll need a head start if you want to get there before too many others have colonized your dreamscape.

Start with issues 44-49. They were the vehicles through which the CTMU was introduced to this group *six years ago*. Chris Cole is responsible for providing these issues to anyone who wasn't around at that time. Bear in mind, as you read these and other contributions, that a prophet without honor is a prophet nonetheless. And Richard...good luck.

Chris Langan

Robert Low:

Your article on the polymorphism of rationality brings up some good points. You have indeed found a limit at which the standard definition of rationality breaks down. However, it represents a decision-theoretic infinity whose nature does not distribute over the entire domain of utility functions. Read on to find out why.

But first, let's clear something up. I did *not* "seem to assert that the only possible utility function is expected (monetary) income", except perhaps in the shallow opinions of those who fail to understand the primary thrust of Newcomb's paradox. If you are one of these, then please read my letter to Dick (no harm in having a shallow opinion, mind you, if you amend it before it's too late).

Second, regarding your confusion of Newcomb's *problem* with Newcomb's *paradox:* Newcomb talks about a person who must make one of two choices. This person's *problem* is how to choose; he *solves* the problem by finding a rationale. What seem to be two equally good "solutions", neither of which can be challenged within its motivating context (statistics and classical physics respectively), may be considered. A *paradox* exists because these solutions *logically contradict each other* by implying opposite choices. The paradox spans *both* of these narrowly defined solutions and their contexts; it is an extension of the "naive" problem to a wider (metalinguistic) context. The paradox can be *resolved* only by explaining why one solution, and therefore one choice, is actually better than the other. This requires a model for logical inference, i.e., a syntax for the metalanguage expressing the resolution. Such a model exists; introduced in the paper *The Resolution of Newcomb's Paradox (Noesis* 44, December 1989), it is called "the CTMU".

Now, you happen to have a legitimate reason for being ignorant of this paper and the model it introduced. To wit, you are a recent subscriber to *Noesis*. Accordingly, I'm going to take this opportunity to fill you and others in on a little Mega Society history that you would probably never hear if I weren't around to tell it.

When I wrote the abovementioned paper, *Noesis* was exclusively the journal of the Noetic Society, a sister organization to this one. Because the job was considered a burden, the editorship was being passed around on a rotating basis; even so, there was grave doubt as to whether the journal would continue to exist. To ensure its continuation, I accepted editorial responsibilities not only for #44, but for the next five issues as well. Due to the fact that contributions had long been at low ebb, I was *forced* to write them all in their entireties. Otherwise, there would have been nothing, and I mean nothing, behind the title page of any of them.

To increase the likelihood that these issues would be interesting to the members, I decided to address topics that they had presented. These had to do with such matters as Newcomb's paradox, quantum theory, and the theory of probability. I did this in what I believed to be an educational and readable way, given the supposed interests and IQ's of my readers. Try, then, to imagine my chagrin when I was informed by Ronald Hoeflin, after producing and paying for six issues from cover to cover, that a certain influential member - Chris Cole - had taken offense at the way I was "monopol-

izing" the journal, and had undertaken a telephone campaign to get me removed! I was sufficiently disgusted and disappointed by this to move aside and let Ron personally resume the editorship.

Not too long afterwards, and perhaps not too surprisingly, the editorship was bestowed by Ron upon his favorite rising star, Rick Rosner, who just happened to live not too far from Cole. In fact, Cole had kindly agreed to serve with Rick as publisher, and would even provide Rick with a computer to expedite his new duties. With Ron and Chris behind him, Rick lost no time in announcing that he would be a "strong" editor: there would be no more unreadable monopolization of *Noesis* as long as he was in charge! The two sister Societies merged, and Rick and Chris rode high in the catbird seat.

I decided to bide my time. My paper, *The Resolution,* had been utterly ignored; so had several other extraordinary insights. Since then, issues 44-49 have remained "buried", unread by the vast majority of our subscribers. Meanwhile, other theories have come and gone. Rick proposed a theory he called "Metaprimes", sparking a flurry of digitized activity in Southern California; I politely pointed out that it resulted in a dissociation of cardinal and ordinal numbers and was *prima facie* absurd. Chris Cole presented his own pet topic, "Bayesian Regression", and drew certain epistemological conclusions, e.g., the assertion that a certain Hoeflin test problem involving marbles was insoluble. I showed with transparent logic (and an equally transparent street clown) that it was in fact soluble, and that the theory of probability could be relativized according to higher-order predicate logic. Ron Hoeflin presented a new "root metaphor" of metaphysics, "the purposive act". I showed that it violated a hard criterion of metaphysical theorization, self-similarity, and explained in precise terms how a self-similar logical theory of metaphysics had been constructed. Sooner or later, I hoped, somebody would manifest the brains and fortitude to testify regarding who actually had "the right stuff", and who was actually monopolizing *Noesis* with nonsense.

But amazingly, nobody ever admitted getting caught with his pants down, and nobody else seemed to be catching on. Whenever the mud would fly, it was always *me* who needed a catcher's mitt. Finally, in response to Cole's incredible challenge that I "show something the CTMU solves that cannot be solved some other way", I presented to the Mega Society's most illustrious member - a man revealed several issues ago as Professor Edward O. Thorp of UC Irvine, renowned mathematician and part-time investor - the highly original, airtight proofs of four of the most difficult and notorious conjectures known to the world of mathematics. I'd been led to expect a fair hearing; instead, I got put on hold. Incredibly, to this day, nobody in the Mega Society has ever admitted that I solved a problem or made an original contribution of any kind.

As you've seen, certain subscribers to *Noesis* have funny ways of recognizing my efforts on their behalf. If it's not a lambasting from one of the "Bobs" (Dick and Hannon), it's a misguided comment like that cited in paragraph two of this letter. In the mean time, *Noesis* winds its dreary way from boogers to crank mathematics to fellatio to crackpot science to merkins... and so on *ad nauseam.* So you tell me, Robert: whose fault is it that nobody in our extended group knows what the hell Newcomb's paradox is about?

Now, on to your very interesting paper on utility and rationality. The standard game-theoretic definition of rationality equates to the maximization of a utility function which is the product of a sum of money and the probability of its acquisition by the player. Money may look like a "special case", but it isn't. No matter what alternate form of utility you propose, it can always be asked what amount of money you would accept to relinquish it, or what amount you would give up to ensure it. For example, I could give you more money than you could spend, and then ask you to choose (1) me taking it all back, or (2) you immediately giving up your alternate utility. Stipulating that you would lose both utilities if you refused at any point to choose, I could then begin to take back the money by increments and pose to you a sequence of similar choices involving the reduced amounts until we had finally placed a finite monetary value on your "alternate" utility.

If you select (1) on the first choice, then your alternate utility is priceless (to you, on a subjective basis). For instance, if the alternate utility is your life, it is monetarily priceless to you *unless* there are others whose happiness you value more than your own existence, *and* you have time to give them the money (money is valuable only if it can be spent, and this requires time and opportunity). Because the value of money depends on that of self, the standard definition of rationality breaks down at this limit. But below it, money remains an existentially verifiable "universalization" of human utility, an economic generalization in terms of which all other utilities can be expressed and quantified.

Consider more closely the case in which your entire net worth is to be bet on the flip of a coin, with one extra cent for a win. If you refuse, and I ask you for a *rational* justification, you will either have to (a) answer me in monetary terms, or (b) regress to some alternate form of utility. If you do (a), then you are merely stating that your *actual* monetary loss, after all hidden factors are accounted for, exceeds your prospects for gain. I.e., you are telling me that you stand to *really* lose more money than it *looks* like you'll lose, and to really gain relatively less. In this case, your decision is conventionally rational *a fortiori;* I can add on all of these hidden expenses, toss in a penny, and watch as your Faustian rationalization forces you to accept my revised bet. On the other hand, let's say you do (b). E.g., you claim that life is so short, and you so frightened of temporary inconvenience, that you will accept *no* amount of money to risk it. In this case, if your alternate utility (temporary freedom from fear and inconvenience) is *not* priceless to you, I can translate it to money by the above sequence of choices and make you admit that your rationalization is monetary after all. One way or the other, the two zones - monetary and nonmonetary - remain sharply demarcated in principle.

In practice, however, the boundary between zones is blurred by a couple of decisive factors. One, already dubbed "the most valuable commodity", is the amount of *information* you have on potential gain and risk. For example, regarding our revised bet on your assets, you might refuse on the grounds that financial ruination could, *for all you know,* cause a chain of events that would end in total misery and/or death for you or a loved one. The wolf at the door is a harsh reality of modern economics. But even though your rationalization breaks through the nonmonetary threshhold, it has

originated squarely in the monetary zone. *Time* - as in "time is money" - is also a factor. The rationality concept is naively defined for games that can be repeatedly played; it assumes that the time between plays is tied to the win-probability coefficient in such a way that the player has enough time, given his resources, to eventually win. Even so, many apparently "unplayable" games can be *quantitatively* adjusted to make them playable, indicating their basic monetary nature. Thus, while the naive definition falls with either assumption, its scope might still be widened by introducing a nonlinear monetary value function involving time and information.

Nevertheless, your basic thesis - that "rationality... cannot generally be identified with expected income" - remains true. This is because money is a *human* abstraction, and it loses all subjective value against a total loss of life, function, or happiness by the subject. Also, because humans are emotional, it is hard to compare the value of money across subjective boundaries; the monetary values of various forms of happiness, and the border between monetary and nonmonetary utility, can vary widely due to the experience and emotional constitution of the subject. Different people place different values on principles, beliefs, relationships, and feelings. Modern economic theory fails to account for any of these factors (it may yet be possible to formulate systemic invariants involving these factors above the level of inter-subjective distinctions).

Interestingly, your paper was foreshadowed in 1989 by one of the greatest Megarians of all time, Eric Hart (the one who gave *Noesis* its name). In response to a paradox presented by Cole, he published a paper on the subjective nature of utility. While this paper received as little recognition as any of my own, rumor has it that Hart went on to develop some of the implications hinted at above.

Incidentally, I owe you a letter. But I can't pay my debt until I find your address. Since you live in Britain, you might not have heard about the terrible Westhampton wildfire that destroyed 6000 acres in southeastern Long Island; I was one of the handful of unfortunates who were forcibly evacuated from their homes. In the process, many of my belongings were strewn around and possibly lost, including your letters and certain other records. If you still want a personal response, just write or phone. In any case, to let you know the slight wasn't intentional, I append a letter I wrote to you around the time the fire occurred (when I decided to write it, I thought your address would turn up shortly; as it turns out, that was overly optimistic).

But first, try to imagine for a minute or two what it must *feel* like to be me. Despite having already accomplished things that other mathematicians and philosophers would sell their souls to duplicate, I work for miserable wages in menial jobs. I don't know what it's like to have money, opportunity, or assistance. I pay over two thirds of my income for the privilege of living in an uninsulated one-car garage. My living situation is threatened constantly by the moneygrubbing ingrates whose mortgage I'm paying. This summer, I had some severe medical problems; I have no medical insurance. Even my dog, the other half of my family, has vanished. An incestuous confederation of fat-bottomed academic mediocrities, paid to posture while I perform for free, refuse to yield so much as a written promise of credit for information they couldn't track

themselves if they had a millenium. And yet, my (decidedly non-monetary) ethos compels me to keep going as though somebody cares.

That's all beside the point, *except* for one fact: I don't need to waste any more time trying to communicate with people who dummy up every time I look at them. On the basis of past experience, I know that some readers of this journal - even some actual members of the Mega Society - are going to claim that *this very letter*, having been written by Chris Langan, is "unreadable". They'll claim that terms like "metalanguage syntax" and "nonmonetary utility" are neologistic and incomprehensible. They may even drool a little for theatrical effect. I have only one request: if you're one of them, tell me now so that I can avoid further discourse with you. Agreed? Now, on to the letter.

Robert: My apologies for the delayed response. A 6,000 acre wildfire in this area (Westhampton Beach and environs) forced me to evacuate at short notice with all my belongings. Many items were misplaced in the confusion, including such things as paper, word processor components, and correspondence.

Your account of yourself arouses my enthusiam. However, one thing monopolizes my attention: the apparent fact that you're a British citizen. Of course, I credit you with honest intentions. But since written agreements are my sole means of protection, I naturally wonder how international boundaries might affect their value.

Until I can answer that question, I'll be working on a simplified, streamlined version of the *Hajós* proof. The original paper was deliberately fitted with sufficient conceptual outrigging to allow an effortless shift to the P≠NP component; this time around, most of those lines will be cut. That should not only make some of the logic easier to follow, but let me rest easier as well.

While I respect the need for peer review, I stress again that it seems to offer *me* relatively little in contrast to its risks. The level of criticism to which I've subjected the proofs is already nothing short of overkill; I've disposed of every plausible criticism which might have been offered. I don't need confirmation for what I already know is correct. That leaves only wider credibility as a goal, and this requires reviewers unafraid to speak up for me regardless of countervailing opinion within the mathematical community (as you might have gathered, Messrs. Appel and Haken have done their best to convince everybody, quite wrongly, that no short proof of the four-color theorem is mathematically possible). I may need confidentiality now, but I'll need support later.

Incidentally, don't take too personally my rather curt *Noesis* 108 dismissal of your (possibly deep) comments on rationality in the context of Newcomb's paradox. It's just that I addressed the paradox so long ago, from so many angles, and with so little feedback that I now suspect I was playing to an audience of one. Actually, I think we could all benefit from a renewal of the discussion (for example, your point could be developed along the lines of certain related decision-theoretic paradoxes).

Meanwhile, I welcome your further insight and suggestions, and look forward to any response you might offer. CHRIS LANGAN

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Book Review

Black holes and time warps: Einstein's outrageous legacy

KIP S. THORNE
New York: W. W. Norton & Co., 1994
ISBN 0 333 63969 3
pp. 619

Kip Thorne has been a major figure in general relativity for more than two decades now. In the early seventies he was one of the co-authors of Misner, Thorne and Wheeler's *Gravitation*, which has been a (some would say *the*) standard textbook in the area for over twenty years. In the eighties he was co-author of Thorne, Price and MacDonald's *Black Holes: the membrane paradigm* which presented a powerful new framework for the study of black holes. He has contributed to the study of stellar structure, black holes, gravitational waves, and most recently, to the question of whether or not the laws of physics as currently understood actually permit time travel. In this book he presents the story of some of the major developments in GR since its inception with Einstein.

The book is interestingly structured: rather than take a simple chronological approach, Thorne follows various themes as they developed. This leads to a certain amount of jumping back in time, but in fact works very well. In outline, the book is as follows.

First, there is a prologue which consists of a mock science fiction tale in which the protagonist encounters most of the phenomena to be explained in the main body of the book. It should be instructive to read the prologue, then the book, then the prologue again to see how one's appreciation of that portion changes.

The first major topic is an outline of basic special and general relativity, which occupies the first two chapters. Although the book is non-mathematical, the exposition here is of the highest order, and includes some of the elegant gedanken-experiments Einstein used to develop the mathematical formulation.

The subsequent four chapters cover the story of black holes, from their initial almost universal rejection, through to the almost universal acceptance of a black hole as the inevitable result of the gravitational collapse of a sufficiently heavy star, via the work on stellar collapse of Chandrasekhar†, Oppenheimer, and others. There follows a chapter on the mathematical breakthroughs that permitted some of the more surprising properties about black holes to be discovered: for example, black holes have mass, angular momentum, and charge, but no other observable properties—in other words, the retain almost no information about the configuration that collapsed in. Furthermore, although (classically) nothing can get out of a black hole, it turns out that it is possible to extract some of the energy from a rotating black hole by a process discovered by Penrose.

There follow three chapters on the observational problem. Initially, black holes were almost entirely ignored by observational astronomers, but as time progressed

† Chandrasekhar died after a heart attack on Aug 21, 1995

interest grew until we now have many good candidate objects—objects which could conceivably be something else, but which are most easily explained as black holes. It is now generally accepted that massive black holes lurk at the centre of most galaxies, and black holes provide the most plausible energy sources for quasars. One area of astronomy which has yet to be developed is that of gravity wave astronomy. As of now, no unequivocal observations have been made, but the technology is developing apace, and we strongly suspect that gravity wave observations will provide a completely new window on astronomical processes, particularly those involving binary systems. You might wonder why anybody is bothering to try to build gravity wave detectors if we haven't seen any yet, but we do have strong indirect evidence of their existence. Binary systems have been observed to have orbits that decay at a rate consistent with their giving off gravitational radiation just as GR predicts.

Next, there is a philosophical interlude in which the reality of the curvature of space is considered. One can take the attitude that space is 'really curved', or the attitude that space is 'really flat', but that matter exerts a force field which causes everything near them to distort in a consistent way. There is no operational way of saying which of these points of view is 'true', as both make exactly the same physical predictions: however, they provide different ways of thinking about phenomena, which may be suitable for different problems.

Finally, there are three chapters which are, for me, the heart of the book.

First, we have the chapter on black hole radiation. Although nothing can escape from inside a black hole if we stick to the rules of classical physics, something new can happen if we consider quantum processes. Although we currently lack a full theory of quantum gravity, we can study a hybrid theory which considers quantum processes on a background of curved space. If we do this, black holes appear to radiate just like black bodies, as Hawking discovered in the seventies. It is generally assumed that the hybrid theory, capturing as it does important properties of quantum field theory and general relativity, exhibits properties similar to those of the underlying theory of quantum gravity which we don't yet have. As a consequence, we can be reasonably sure that black holes radiate, but have little information about just what happens when the black hole radiates as much as it can. Does it just disappear completely, or is a naked singularity (a point of infinite curvature unconcealed by a black hole) remain?

The next chapter considers what is inside a black hole. Although what we can see *outside* a black hole is very simple—we can see total mass, angular momentum and charge—the internal structure is much more complicated. In fact, as one approaches the heart of a young black hole, the curvature is very badly behaved indeed: the tidal forces become infinite, in a chaotically varying way. However, as the black hole ages, this chaotic behaviour settles down to become relatively regular and smooth—to the point where inside a sufficiently large black hole a suicidal observer should be able to survive long enough to see genuine quantum gravitational effects. Of course, being trapped inside the black hole, he would never be able to tell anybody back home about them.

Finally, there is the most speculative chapter of the whole book, the one on

time machines. Within classical gravity, it seems possible that it is possible to build configurations that allow one to travel backwards in time. The most plausible configurations involve an object known as a wormhole, which you can think of as a kind of tunnel in space which has a very short length, but whose ends connect distant regions in space. *If* wormholes exists, then it might in principle be possible to drag one of the ends about in such a way that the two ends of the wormhole connect regions which are separated by a significant amount of time. Traversing the wormhole in the right direction would take you out of the far end sufficiently far in the past that you could travel back to the mouth you entered and arrive before you left. There are obvious traditional problems associated with this possibility, and Hawking has developed what he calls the chronology protection conjecture, which says that the laws of physics do not permit such a configuration to occur. The arguments adduced in favour of this conjecture are not yet convincing, based as they are on the hybrid theory of quantum physics on curved space background, but they do tend to suggest that there are at least severe difficulties in building a time machine.

Overall, I found the level of exposition to be superb. There are a couple of technical issues that I feel could have been covered better. One is the conceptually difficult problem of whether or not the black hole ever actually forms: a few more diagrams and paragraphs of explanation about the Eddington-Finkelstein picture and its relationship with the Schwarzschild one would have been extremely useful. Also, in the discussion of wormholes, the fictional embedding hyperspace used to construct visualizations seems occasionally to be raised to the status of a genuine physical space, which will cause great confusion to some readers. I also feel that the tentative nature of many of the results obtained using quantum theory on a curved background should have been stressed more, and some explanation given of when it seems most reliable. But these issues are relatively minor, especially when weighed against everything else in the book.

Above, I have discussed only the scientific content: but the process by which these discoveries were made is almost as interesting. We are also given a fairly detailed history of how the discoveries were made, which shows the contrasts between the American and the Russian research teams, and the various collaborations and conflicts which eventually led to our present understanding.

We are also given some subsidiary information that more science books for non-specialists could usefully provide. There is a list of the important characters, with outlines of the relevant work they have done; a glossary of technical terms; notes on the text with further background, more technical information, and references to the literature; a chronology; a bibliography so that the interested reader can chase up the original literature; and good subject and people indices.

Overall, I found the book excellent. It is well-written, entertaining, and informative: I certainly learned things about relativity and relativists that I didn't know before reading the book. I'd recommend it very highly to anybody interested in relativity and its consequences.

Robert Low

TWO MEMORY TESTS

The following list (reprinted from a 1970's German newspaper article) was given to chess master Harry Nelson Pillsbury in 1902. He looked at it for half a minute - 2 minutes according to another source - and then repeated it forward and backward from memory.

Antiphlogistine periosteum takadiastase plasmon threlkeld streptococcus staphylococcus mirococcus plasmodium Mississippi Freiheit Philadelphia Cincinnati athletics no war Etcheneng American Russian Philosophy Piet Potgleter's Rost Salamagundi Oomisillecootsi Bangmamvate Schlechter's Neck Manzinyama theosophy catechism Madjesoomalops.

A similar list was given to chess champion Garry Kasparov in 1987. It contains again some artificial words; the words in italics were translated for him into Russian.
Kasparov's results: 20 words written down after 3 minutes, 7 more words in additional 5 minutes; some words spelled wrongly.
Here is the list:

Antihistamine appendicitis plesiopsic salmonella Talgult staphylokinase streptokinase mirokinase fissura Irkutsk Gleichheit Leningrad Ussuri *astronauts* glasnost Achtenbach *European Chinese history* Fritz Meiers Hut Tegemerilti Uumotelleguwi Tongorolote *Hübner's finger* Kauzumyni *agnosticism textbook* caloria Hatjiroomutos.

(Peter Schmies)

TWO (SARCASTIC?) POSTCARDS FROM RICHARD MAY

Dear Rick,

I may strive to make future submissions more concise, limiting them to fragments of letters of the alphabet or fragments of the spaces between the letters. Best, Richard

Dear Rick,

Perhaps the socratic injunction "Gnothi Se Auton" ought to be generalized to include the archaeic sense of "Know," thereby establishing a philosophical foundation fir ipsism, if not for solipsism? (Needless to say I owe this insight entirely to the CTMU.) Best, Richard

FROM PAUL MAXIM

Dear Rick, I received my copy of the October NOESIS, and "Another October Issue," for which I thank you. Concerning the article by Chris Harding in the October issue (on his telescope mirror), I found this very difficult to read, because of the extremely small type. Hence, I would suggest that in the future, reduction of type to this "microscopic" extreme be avoided.

I am enclosing herewith, for NOESIS, two articles representing a single monograph The subject is the cryptographic decipherment of a poem by Mallarmé, which he called "a game" when it was published in 1895. It has taken an entire century for someone to figure out just what this "game" constituted, but I think I have solved it. The two articles are meant to be published in two sequential issues, which will bring each down to "manageable" size of about 5 pages; the (so-called) "Text Reversal Diagram" (the crazy-looking one) should be published as Page 1 of the second article in sequence. This mode of presentation will allow the members to ponder and cogitate on several steps in the cryptologic sequence, which I present as a problem at the conclusion of Article I, and then go on the completely explain in Article II. I would like to see how many readers are able to correctly fill in the missing steps in the crypto-sequence, and have provided a variety of clues to help them do this. To the best of my knowledge, this is the only poem which contains a genuine cryptogram, and it shows just how far (after 30 years' practice) Mallarmé was able to carry his "constructive" literary technique If Mallarmé was alive today, I think he would easily make it into Mega, since I estimate his I.Q. at around 180, based mainly on what he achieved in the domain of hermetic constructs and puzzle-making (he was probably the world's greatest deviser of word-puzzles). There's an interesting story connected with this, sinc Mallarmé's school record was undistinguished; in other words, he gave no sign, at an early age, of the enormous intellectual potential he later developed, and so his school record completely failed to predict his ultimate accomplishments.

Sincerely,

PAUL MAXIM, POB 120
New York, N.Y. 10012

The Mallarmé Decipherment Project...

A CRYPTOPOEM BY MALLARMÉ: THE CIGAR-SONNET

* * * * *

Toute l'âme résumée Quand lente nous l'expirons Dans plusieurs ronds de fumée Abolis en autres ronds	The whole soul summed up/ begun again When slowly we breathe it out In several smoke-rings Vanishing in other rings
Atteste quelque cigare Brulant savamment pour peu Que la cendre se sépare De son clair baiser de feu	Bears witness to some cigar Burning cunningly so long As the ash detaches itself From its bright kiss of fire
Ainsi le choeur des romances À la levre vole-t-il Exclus-en si tu commences Le réel parce que vil	Thus the chorus of romances Flies to the lip Exclude from it if you begin The real because (it is) base
Le sens trop précis rature Ta vague littérature.	Too precise a meaning erases Your vague literature.

When Mallarmé published this sonnet in 1895, he referred to it as "a game," or "a jest" (un jeu), but since then no one has been able to satisfactorily explain just what this "game" consisted of. I suspected that, here as elsewhere in Mallarmé's hermetic works, the "game" was really a word-game with metaphysical overtones. In other words, the poem contained some kind of hidden letter-manipulative process, which when correctly performed by the reader, would allow access to Mallarmé's "hidden message."

Of course, since cryptogrammatic poetry is extremely rare, it was necessary from the outset to hypothesize that Mallarmé had the capability of doing the unlikely: that is, of incorporating a letter-manipulative scheme in a natural-language poem. It was also necessary to assume that his scheme was rational, and could somehow be figured out without external instructions. Obviously, the first step would be to find some point of entry into the presumed word-game, that could yield an initially promising result.

The Entry-Point. The "suggestion" that came to me was that, in lines 7 and 8 of his text, Mallarmé was not only describing a cigar that burns properly only when its ash is periodically removed, but was also hinting at an analogous process of letter-subtraction, in which all the letters of la cendre ("ash"), or la cendre de, should be removed from the phrase, son clair baiser de feu, where they all appear at least once. In this way, the letter-manipulation would directly simulate what the poem was overtly describing. Similarly, what was left behind following this subtraction (in other words, the "difference" letters) would represent the "cunningly burning cigar," or some intermediary phase in the poem's cryptogrammatic process:

```
son clair baiser de feu
  n cla      er de          <- (la cendre is subtracted)
so     ir bais       feu    <- (residue, or difference)
```

Fig. I: The Initial "Flicking of Ash."

The resultant eleven letters, as they stand, spell out three legitimate words: evening (soir), bay-colored objects (bais), and fire (feu), and can be rearrange into a number of other recombinations, some of them potentially meaningful in th context of the poem. Apparently, our first operation has been performed successfully -- but WHERE DO WE GO FROM HERE?

Background. It is well known that Mallarmé approached literature from a different perspective than most other writers. Beginning in his early 20's, he espoused hermeticism as his guiding doctrine, and deliberately set out to create works that embodied both an overt and a covert component. To do this, he developed an elaborate "micro-representational" technique employing a variety of familiar word-play devices, such as anagrams, homophones (puns), pictograms, letter-arithmetic, and clever structural analogs (logograms), all of which could be integrated within the same natural-language context. In this way, Mallarmé succeeded in creating what amounted to both a novel linguistic technique, and a new literary genre, which has posed enormous challenges to his posthumous analysts.

In the domain of prose, Mallarmé's late essays embody a series of "cryptopuzzles," one per phrase, which collectively constitute an enigma-history of the highlights of Western Civilization. That is to say, each phrase is esoterically focused on some historical or topical event, whose identity and characteristics must be elicited through logological/phonological analysis, by matching the phrase's features with key facets and coincidences of its hidden subject

Mallarmé's late poems are also highly "constructive" in nature, and several of them embody a unique device he appears to have invented, which I have dubbed the Text Reversal Overlay Diagram, or DORT/TROD. This is fashioned by overlaying a backwarded version of the text atop its forward version, following removal of all interword spaces, and results in a two-tier diagram which permits ready identification (for example) of the poem's central letter or phrase. In the case of the Cigar-Sonnet, this "central" phrase turns out to be se sépare De, and it is not difficult to infer that its physical centricity was used analogically by Mallarmé as a clue to its key logological role. As it turns out, centricity plays an important role in Mallarmé's constructive methodology, and he uses the same device in several other poems as well.

The New Linguistic. But what (one may ask) was the ultimate purpose of these elaborate constructions, and the laborious process of concealment and calculation that underlay them? One answer lies in Mallarmé's novel theory of language which he imbued with an entirely new representational dimension. In other words rather than depend entirely on language's descriptive faculty (as most writers do), Mallarmé decided to explore its analogic and simulative capabilities, by using those parts of language that we normally discard (such as homophones), or employ only for "fun and games" (such as anagrams, pictograms, letter-arithmetic and the like). Within Mallarmé's scheme, the "extraneous" phonemes and word-games would function as an integral part of his composition's expressive capacity, completely integrated with the "covertext" that concealed them. In this way, simulation would transcend description as the stratum which carried the composition's essential meaning, and without which it could not be fully understood. Mallarmé was well aware that this approach would impose enormous burdens on his reader-analysts, but his dedication to hermeticism was uncompromising, and so he went to his grave not knowing whether, or when, his system would ever be deciphered.

The Great Arcanum. But there was another, even more immediate reason underlying the hermetic conceptualization of many of Mallarmé's late poems, since he used their cryptic constructs to "enshrine and protect" a personal secret which, had it become known, might have caused him acute embarassment. This was because the great Mallarmé, the leading French intellectual of his time (and perhaps of all time), was a comet worshipper, and regarded comets not only as his personal "divine signs," but also as the embodiment of his deceased family members -- a very ancient belief known as "catasterism." All in all, about a dozen of his poems contain cometary imagery, and reveal (upon analysis) a detailed astronomic knowledge of comets, making them (aside from the cryptogrammatic process itself) the single most prevalent theme in his mature works. As a poet, Mallarmé viewed comets metaphorically and metaphysically, but he also managed to imbue his comet-poems with disguised facts and figures that he could only have obtained from astronomical literature, and which demonstrate that he was quite capable of viewing comets in a scientific as well as a literary sense.

One class of comets that particularly intrigued him were the sungrazers, which came to prominence in the early 1880's, when astronomers hypothesized that certain spectacular comet-sightings (such as those of 1843, 1880, and 1882) really represented returns to the Sun of fragments of a much earlier comet (that of 1106), which had undergone nuclear disintegration as it rounded the solar orb. The great comet of September 1882 likewise broke into four sub-nuclei after rounding the sun, and in addition passed directly between the Sun and the Earth, thus proving itself to be (in Mallarmé's eyes) a kind of "celestial intermediary." It is this event which loomed large in Mallarmé's "metaphysical iconography," and he returned to it again and again with great descriptive ingenuity - as well as to a comparable event which took place on June 30, 1861, when the tail of Tebbutt's Comet swept across the Earth, causing some unusual atmospheric effects (such as "weak sunlight," combined with an early sensation of dusk).

The Secret Language. When we subject line 5 of the Cigar-Sonnet to an interpretive reading, based mainly on its homophonic content, it yields an entirely different message from what appears on the surface. For example, atteste may be read as at teste ("at head/crucible"), while quelque may similarly be phoneticized as quelle queue ("some tail/sequence"). Next, cigare is interpreted (in accord with its "prosodic" pronunciation) as ci/si gare eux, translated into English as, "yes/here shunt them." It is use of the term "shunt," combined with "head," "crucible," and "tail" or "sequence," which signifies the line's esoteric meaning, since the reference is to a sungrazing comet at perihelion, being rapidly shifted, or shunted, from an incoming to an outgoing path around the Sun

But how does a comet relate to a cigar? One answer arises when we view a diagram of the Solar System, on which the orbit of Comet Halley has been superimposed, and note that this orbit is cigar-shaped. Furthermore, the "burning tip" of this "cigar" can readily be identified as that portion of the orbit near the Sun, since this is the only point at which the comet becomes visible, through process of solar incandescence. The comet's tail, which develops at this point, always blows away from the Sun, and so represents the "smoke," while the "ash" is analogized by cometary debris which forms its dust tail, or remains behind in orbit as meteoric fragments. Thus, when the comet is near the Sun, it appears to "burn" (even though no oxidation is involved), and the boiling off of dust and gas from its surface simulates the removal of ash from a burning cigar (this is hinted at by homophone "volatile" -- i.e., vole-t-il -- in Line 10).

It should not be too difficult to recognize, therefore, that the letter-subtraction operation in Fig. I is not simply a piece of random word-play: rather, using letters as particles, it physically replicates what happens when a sungrazing comet is caressed by the Sun's "clear kiss of fire," and sheds its superfluous "ash."

The Fairy's Kiss. Even more specifically, this letter-subtraction can be taken to suggest the strange occurrence of June 30, 1861, when for many hours, sunlight reaching Earth was filtered through several million miles of dust from the tail of Tebbutt's Comet. Of course, this "ash" was invisible (because it was so diffuse), and similarly, by placing (or "supposing") the letters of la cendre beneath those of son clair baiser de feu, we also cause them metaphorically to "disappear," via the identity of figure and ground, or via the subtraction process itself, which cancels out "like" letters (in subtrahend and minuend) through a "logical and."

The importance of this comet's "tail-sweep" to Mallarmé may be inferred from another stanza describing it, which occurs in his poem, Madame Mallarmé's Fan (published 1891):

...Limpide (où va redescendre	Transparent (where is going to descend agai
Pourchassée en chaque grain	Pursued in every grain
Un peu d'invisible cendre	A little invisible ash
Seul à me rendre chagrin)...	Only to bring me grief)...

It is not too difficult to recognize in this "little invisible ash" both the penitential ash of Western religious tradition, and the comet-tail of 1861, whic by sprinkling the Earth with its fairy-dust, appeared (in Mallarmé's eyes) to have censed or purified it. Less than a year following this event, Mallarmé had completed his first cometary poem ("Apparition"), in which he describes the comet metaphorically as "the fairy with hat of light," having "sunlight in (its) hair," and commemorates the occasion on which he saw it as "the blessed day of your first kiss."

At virtually the same moment in time (late 1861-early 1862), Mallarmé began work on the prose essay ("Artistic Heresy: Art for All") in which he articulated his theory of a "two-tier" literary style. Thus, the evidence shows that this remarkable confluence of events, which also coincided with the awakening of Mallarmé's great intellectual ability, was triggered by a never-before-suspected astronomic occurrence which marked the major turning-point in his life and career, and which he thereafter commemorated in a variety of hermetic poems.

Sifting the Residue. The foregoing discussion may serve to suggest the metaphysical significance of the eleven letters (SOIR BAIS FEU) which fell to the bottom line in our "subtraction of ash" (Fig. I), since analogically speaking they constitute the residue which remains after the sun's "bright kiss of fire" is screened or filtered through the comet's dust-tail, and so therefore analogize the effect on Earth of this extremely rare event. These letters can be rearranged in a variety of ways, such as BAISER SI FOU ("kiss so mad"), which appears not only to "recapitulate" the minuend (son clair baiser de feu), but reaffirms the association between "kiss" and comet that runs throughout Mallarmé's hermetic verse. What he is alluding to, in part, is a medieval metaphysical concept known as the "death of the kiss," which he applied to a sungrazing comet's close perihelion encounter, when it is almost lured to destruction by flying directly through the sun's corona. Here the comet is "the lover," while the sun represents the metaphysical love-object toward which it is inexorably drawn, in an astronomic ritual of cosmic renewal: I.e., the comet's return to perihelion marks the regeneration of time, the completion of one great cycle, and the beginning of another.

Another way of rescrambling the eleven residue letters (se subir à foi) seems even more pertinent to Mallarmé's personal experience, and to the change he underwent as a result of Comet 1861 II. Although subir ("to submit, to undergo, to experience") is not normally a reflexive verb, the meaning here is nonetheless quite clear, and it hints at a religious conversion: i.e., "to submit oneself to faith." From this point onward in his life, although remaining a nominal Catholic, Mallarmé became more and more obsessed with his secret comet-religion, and regarded comet-sightings as his own personal omens. Strangely enough, they seem to have had a benevolent effect on his career, since it was shortly after the disappearance of the "String-of-Pearls" comet of September 1882, that Huysmans began work on À Rebours, the book that made Mallarmé a household name throughout France, when it was published in 1884.

The Next Step. Finally, we come to an anagrammatical arrangement of the eleven "residue" letters (from Fig. I) which seems to "point the way" toward a continuation of the poem's cryptogrammatic process. This new rearrangement is SEI: FOUR BIAS, or I.E.: BASIS FOUR, in which sei is simply the Italian for "six." In other words, we are being given a hint that the "sixth" step in the process of decipherment may include a "shifting" or "slanting" operation, involving a "bias" of "four" -- perhaps a modified form of the "Caesar-cipher" of antiquity, in which each letter of plaintext is substituted by a letter standing a fixed number of places before or behind it in alphabetic sequence.

In part, the ability of dealing effectively with Mallarmé's cryptic constructs stems from a knowledge of the high degree of specificity with which he was able to imbue them. In other words, his statement, in the poem's closing couplet, that "Too precise a meaning erases your vague literature," is merely a smokescreen: In reality, Mallarmé's hidden allusions are always precise, and (in the case of his historical puzzles) can usually be tracked down to a specific event, which occurred on a specific date, in a specific place and time (for example, in the cryptopuzzle on Mahler, we were directed to the premiere performance of Mahler's First Symphony, which took place in Budapest on 20 November, 1889, at 8 o'clock p.m.). Hence, in this poem, when Mallarmé speaks of "some cigar," we can be pretty well assured that he has a specific cigar in mind, and that extraction of its name from the cryptogram represents a specific solution of the puzzle he posed.

One confirmation of this conjecture occured when, following identification of the correct "cigar-name," I found that I was able to "flick ash" from it a second time -- in other words, the hidden cigar-name also contained all the letters in la cendre. Hence, the nine main steps in the poem's cryptogrammatic sequence may be itemized as follows:

1. Select minuend phrase (son clair baiser de feu);
2. Select subtrahend phrase (la cendre);
3. Subtract subtrahend from minuend, leaving SOIR BAIS FEU;
4. ------?
5. ------?

Step 6. Perform the suggested "four bias," or "four basis" cryptogrammatic transformation, in which SOIR BAIS FEU will be changed to a new set of letters.

7. Rearrange the resultant letters to form the hidden cigar-name.
8. Subtract la cendre a second time, from the new cigar-name.
9. Analyze the resultant "ultimate residue" letters.

Based on this outline of Mallarmé's overall process, we challenge the reader to figure out Steps 4 and 5, and find the hidden cigar-name. As they say in France, bonne chance; answers will be provided in our next article in this series.

Early September 1995

Mr. Rick Rosner
NOESIS Editor
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Dear Rick, I am writing to call your attention to a situation which is not new, but whose consequences are still "current," in that they have been carried forward to the present day. The situation involves use of unsupervised IQ tests to qualify applicants for admission to the "super" high IQ societies.

* In 1977, Kevin Langdon developed the LAIT, and began using it to test high-IQ individuals, mainly in Mensa and ISPE. At the same time, he founded the Four Sigma Society, and recruited into it those of his testees whom he "qualified" as having a 4-sigma IQ.

* In April 1979, OMNI published the LAIT, and also made the following statements concerning Langdon's testing procedures: "Out of about 3,000 persons who have ordered copies of (LAIT), approximately 500 have bothered -- or dared -- to complete it and send in their answer sheets. The average of these, with about 58% correct answers, had IQ scores just short of 150. Pure guesswork would net you about 20% correct answers and an IQ score somewhere in the subterranean region of "below 125." This test is most effective in measuring IQ's between 130 and 170..."

"Langdon's group is called the Four Sigma Society, and has about 35 members. You can qualify for membership by getting 85% or more of the (LAIT) test items correct, a level comparable to a Stanford-Binet IQ of 164 or better, which puts you above the 99.997th percentile. About one person in 30,000 meets this standard...," etc.

* By July 1979, Mr. Langdon reported (in his "LAIT Norming Report No. 2") that he had scored 553 LAITs to that point in time. But then, due to computer problems, he fell behind in scoring the LAITs which were being sent in by OMNI readers -- a circumstance which ultimately led OMNI to file a lawsuit against him in 1982.

* Mr. Langdon recently stated (please see letter enclosed) that his Four Sigma Society reached a membership peak of 250 in 1980. I do not know exactly how many LAITs he had scored by that point in time, but by way of comparison, it should be noted that ISPE, a 3-sigma group, had 150 members in 1980, and fewer than 100 in 1979. In other words, even though 4-sigma IQ's are thirty times rarer than 3-sigmas in the general population, Mr. Langdon claimed to have recruited more 4-sigma individuals in three years than the number of 3-sigmas ISPE had enrolled in six.

* Although Mr. Langdon has not disclosed the number of LAIT tests he employed to arrive at his claimed "250" qualifiers, I estimate that (by 1980) it could not have exceeded about 2,500, and might have been considerably less. This means, in turn, that Mr. Langdon is claiming (or attributing) a 4-sigma IQ to more than 10% of his sample -- an incredibly high figure, considering the "one in 30,000" average incidence of 4-sigma in the general population.

* In attempting to appraise the plausibility of Mr. Langdon's claims, I employed a rough statistical measure of the relative proportion of 4-sigma IQ's in certain definable test populations. For example, had Mr. Langdon tested all

150 ISPE/TNS members by 1980 (which he most likely did not), he might have reasonably expected about seven 4-sigma scores to result therefrom. This is because the normal incidence of 4-sigma IQ's in societies with a 3-sigma threshold is about one in 20.

* Similarly, had the remainder of Mr. Langdon's test sample by 1980 consisted of Mensa members, another five or six 4-sigma scores might reasonably have been anticipated, since the normal incidence of 4-sigma IQ's in a 2-sigma threshold society is about one in 400.

* As regards testees consisting of "OMNI readers who take high-IQ tests," the anticipated incidence of 4-sigma scores is even lower, based on the estimated IQ for such individuals of 127, as was reported in OMNI for May 1993, P. 94, Col. 2. This means that about one thousand such individuals must be tested to yield the expectation of one 4-sigma score. Therefore, based on this mode of analysis, it may be seen that, taking into account the "IQ background" of testees in the various groups that were available to Mr. Langdon by 1980, the "reasonable expectation" (based on a sample size of about 2,500) was for no more than 15 individuals to have scored at the 4-sigma level, as compared to the "250" Mr. Langdon claims to have qualified.

* Since the "plausibility differential" in the foregoing analysis is greater than one order of magnitude, a very serious question is raised as to whether Mr. Langdon deliberately inflated the IQ assessments he provided to over 200 of his testees, in order to artificially swell the ranks of his Four Sigma Society. The 1979 OMNI article claimed that, by early 1979, Four Sigma had 35 members, but this number again is far too high, considering the roughly 500 testees to whom LAIT had been administered at that point in time. By parcelling out 4-sigma credentials to numerous individuals who did not really deserve them, Mr. Langdon performed a distinct disservice to the entire high-IQ community, and introduced a distortion which, at the same time, tended to "inflate" other IQ assessments: This is because LAIT test results were used as a basis for admission to numerous other high-IQ societies, and also served to help norm subsequently-issued tests.

* In a 1986 Gift of Fire article, Dr. Ronald Hoeflin stated: "I do not trust the norming of the Langdon test, and would prefer that we adopt a more stringent norming procedure...Inflated IQ standards that are not in harmony with real-world facts strike me as dishonest..."

* Based on this problematical situation, which persists to the present day, it seems to me that some of the distinguished mathematicians and psychometricians who regularly read NOESIS might profitably undertake to investigate the validity of Mr. Langdon's LAIT norming and assessment procedures, so as to clarify, once and for all, whether he really "discovered" as many 4-sigma IQ's as he claimed to have done.

Sincerely,

PAUL MAXIM
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COMMENTS ON "GIFT OF FIRE #16"

Ronald K. Hoeflin
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Jeff Ward's Comments on His Proposed Constitution (pp. 2-3):

When I have more leisure, I may propose further amendments to the constitution put forward by Jeff Ward, with the explicit purpose of simplifying and shortening it.

Robert Dick's Comments on Issue #15 (p. 7):

Kevin's test received about 25,000 responses from Omni readers, while my test received about 3,600 responses so far, one-seventh as many as Kevin's yielded. So you should not expect as many people to have qualified at the four-sigma level on my test as did so on Kevin's. I believe that of the 15,000 answer sheets that Kevin scored, 250 qualified for Four Sigma membership, of whom slightly over 100 subscribed to Sigma Four, that society's journal. (I believe that about 10,000 people who submitted answers to Kevin's test never received score reports, at least not within several years, for which reason Omni eventually sued Kevin and won a $25,000 judgment against him.) So if we solve for "x" in the proportion 15,000 : 250 :: 3,600 : x we find that x = 60. Robert Dick says that about 60 persons qualified for Prometheus via my test's appearance in Omni, and he believes that about 300 should have qualified, but as we can see, 60 probably is closer to what we should have expected, given the difference in response between my test and Kevin's. In any case, I do not trust the norming of the Langdon test and would prefer that we adopt a more stringent norming procedure. Robert Dick says that he does not advocate adopting a 1/10 or 1/30 ratio between Prometheus and Triple Nine membership, but I do advocate adopting such a ratio -- specifically the 1/10 ratio -- at least as a rough indication of how faithful our actual admission standards are to our professed admission standards. Inflated IQ standards that are not in harmony with real-world facts strike me as dishonest and had a lot to do with why I dropped out of the Mega Society, which likewise has far more members than its purported one-in-a-million standard warrants. That Society rejected my plea to reduce its professed admission standrrd to one-in-100,000, using "Mega Society" only as an honorary label for the top 10% of members. Mega standards are too lenient by a factor of about 10. Prometheus standards are too lenient by a factor of about 5. Reducing our claimed standard from one-in-30,000 to one-in-10,000 would eliminate over 50% of this discrepency, while tightening admission standards slightly would eliminate the remainder. I am disappointed that Robert Dick does not share my concern about this problem, or even recognize that there is a problem--perhaps because he places too much confidence in Kevin Langdon's norming procedures.