

# Noesis

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### EDITORIAL

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Last issue, I told you to wait for my new address. However, the people who were supposed to buy our place so we could move have bailed, so continue to use my current address and phone number.

I also said we'd list members & subscribers in this issue, but bear with me 'til the December issue.

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### PUBLISHER'S APOLOGY

I'm sorry that this issue and the following one are so late. The problem this time was a combination of UPS and my schedule. UPS tried to deliver the material to me from Rick, but somewhere in this process the "address label fell off" and they returned it, without notifying Rick. It bounced around inside the system somewhere until I missed it and called Rick, who then called and had it retrieved.

By this time, I was on a crash project that had to be finished before the holidays, so I simply did not have time to work on getting the issue published. We'll try to do better in the future.

Anyway, I hope you and yours have a happy holiday and wish you the best for the new year!

Chris Cole

### SCARY STUFF FROM N. HARVEY LAVERY

[Editor's comment: Mebbe, like me, you think this guy is very wrong. However, consider his assertion that, "... over the next 16 months, hundreds of millions of people are going to die ..." If the world population is five billion and has an annual mortality rate of two percent, then, over the next 16 months, about 130 million people will die. Just goes to show, it's always Armageddon for somebody.]

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August 24, 1993.

To the members of high I.Q. societies:

We as humans make a practice of ignoring problems, always hoping they will either go away or will not affect us personally. We alibi our blunders with the excuse "I didn't think" and once again we are faced with having to try to overcome conditions we have created through our greed, lack of thought and understanding; but I suggest that over the next 16 months, hundreds of millions of people are going to die and 1995 may see the beginning of the end of another "species":

- \* They will die because the "authorities" have not recognized it is a build-up of nitrogen in our atmosphere that is responsible for the increase in carbon dioxide (carbonic acid) as outlined in the attached file: Revelation 6:5.
- \* They will die because the increase of carbon dioxide (carbonic acid) is bringing on tremendous cloud cover, storms and flooding rains as outlined in file: Revelation 6:2.
- \* They will die because the climatic changes (retribution) are destroying food crops and potable water supplies, while bringing on a new ice-age.
- \* They will die because the greed designed economic/financial system of the world is turning people against one another and preventing man from correcting the environmental problems.

They will die and then they will learn their existence as a "being" did not begin with birth; nor does it end with death and all people are accountable for what they do or don't do, in each life-time!

Make no mistake! With the conditions that exist in the world today, conditions that are deteriorating with alarming speed, if we continue to do nothing to address the problems and bring an end to the social, economic and monetary causes responsible for them, if we allow our current practices to continue, or do not act on the scale required, most of mankind will die before the end of 1994!

They will die at the hands of their fellow man, by starvation, disease or natural disaster; but all will come to understand the meaning of the word Hell!



mid September, 1993

Rick Rosner  
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Dear Rick,

Suffering minor complications from my impacted-wisdom-teeth extraction; please pardon me if I'm even less coherent than usual. I keep planning to send you a bunch of stuff; keep putting it off. Oh well. Here are a few "puzzles" to tide you over.

Meta-puzzle:

2518320424614440246144374324355142

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- A) A bridge of length  $L$  meters slopes across a canyon, one side  $pL$  meters above the other. A loose chord of uniform density dangles a maximum of  $qL$  meters below the bridge -- ie, in a catenary. Were the rope pulled taut (to follow the path of the bridge) how many meters  $f(r; L)$  of rope would be "left over"?
- B) Same bridge, but the wire is weighted to form a parabola.  $q2L = ?$
- C) Same, only wire is weighted to form an arc.  $q3L = ?$
- D) (Bonus:)

Explain such relationships (bridge vs rope), in general terms, between any two arbitrary functions.

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Try Hoeflin's ant-bumping problem, on an  $N$ -dimensional hyper-tesseract.

+++++

Imagine a sphere,  $r = 1$ . Inscribed within said sphere are a pack of five spheres. Within each of these spheres is inscribed a platonic solid; within each platonic solid, another sphere. How much paint ( $X * r^2$ ) would you need to paint these sixteen surfaces?

+++++

Given  $N$  spheres ( $r=1$ ) inscribed within a torus (diameter =  $2N * \pi$ ), what is the minimum volume of said torus?

+++++

It's all too easy to make an "elegant" sequence no one can solve. One afternoon I sat down and wrote several dozen. Here are a few; but first an example of how to change a sequence someone could solve into one no one can solve:

- A) f, t, t, t, o, z, e, t, f, t ... ?
- B) 6, 21, 22, 23, 20, 32, 13, 27, 16, 29 ... ?
- C) 11, 38, 43, 36, 35, 46, 17, 32, 19, 10 ... ?

+++++

1, 3, 10, 35, 126, 4621, 1716 ...

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

4, 3, 5, 5, 3, 4, 5, 3 4, 3, ...

20, 14, 4, 12, 2, 20, 10, 14, 7, ...

3, 4, 4, 7, 10, 9, 9, 9, 9, 10, 19, 20, 19, 19, 20, ...

8, 14, 13, 45, 95, 75, 74, 73, 72, 90, 350, ...

+++++

Here are two of managable difficulty (I hope):

e, o, e, r, e, x, n, t, e, n, n, e, n, n, e, n, n, n, n, n, n, n, ...

w, h, i, e, l, h, e, i, w, w, h, h, o, o, i, i, i, i, e, e, e, i, i, i, i, ...

Snores,

Kevin L. Schwartz

P.S.

Dear Rick,

Looking back at an old *Noesis*, I read you wanted anecdotes about how our high test scores messed up our lives. I have all too many anecdotes. I had a few teachers who would read aloud my math test scores for the class. Boy did that make me popular. When I was eleven, a substitute physics teacher howled at me in front of my classmates because NO ONE could have completed the test without cheating.

A year or two later, at a chemistry competition at Washington University, I spent most of the allotted time at the blackboard trying to prove to some skeptical professors that none of the "answers" to a certain problem were correct. At last one of them said, "Hey, look -- the kid's right!" Presumably I'd have scored higher if I'd just "answered" the question, shut up about the inconsistencies, and finished the rest of the exam.

I never really got used to the idea that you don't correct teachers when they make errors -- especially in front of the class; nor that sometimes you must deliberately do something the wrong way in a paper or on a test in order to please said teacher.

On the other hand: in social studies, we staged a mock trial of Socrates, the teacher appointing me as the legendary pederast. Despite my unpopularity and despite the super-popularity of the ultra-cool Prosecutor, the class unanimously voted I had to be freed.

The following year, in English, I got a B- on an piece about chess. *Chess Life* bought said piece for \$ 100.

From second grade on, my math and science teachers often gave me bad grades for failing to show my work. Why write lots of stuff down, when my dyslexia would render it all illegible anyway? I vehemently felt -- although I now see I was wrong -- that if I got the right answer, who cares how I got it? At Princeton a math professor warned me that I had the "flare" but that I was in dire need of discipline. Instead I changed departments.

I was the kind of kid who'd trip over the fire hydrant -- or who'd try to push the pull door -- or who'd wait two hours for the tea to boil without remembering to light the stove. I was the quintessential dorkus. I guess I still am. Except now the bright joy of problem-solving and of learning has faded from a bonfire to a dull glow.

15 Aug 93

ARTICLES AND LETTER FROM ROBERT HANNON  
DECISIONS

Robert J. Hannon.  
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Do we actually make decisions? Is it even possible for us to do so?

The human brain is a complex electro-chemical machine. It is subject to the same laws of physics as any other machine. Most fundamental of those laws is cause and effect, that is, causality or determinacy. Determinacy means that any effect (event) (b) is absolutely and inevitably the result of a specific previous event (a), which we call the "cause" of effect (event) (b).

There is no evidence that any effect (event) occurs without a specific cause, nor that the existence of cause (a) does not always produce effect (event) (b).

Thus it is obvious that effect (event) (b) is only the latest in a chain of inevitable causes and effects, going all the way back to the instant that time began. It is also obvious that event (b) will be the inevitable cause of a series of inevitable causes and effects extending futureward to the end of time. These possibly-endless chains of cause and effect are causal chains. They are unbreakable, unalterable, inescapable, inevitable. Every effect (event) is absolutely predetermined by every one of its predecessors.

Plainly, there is a vast number of these causal chains, encompassing every event, no matter how seemingly trivial, in the entirety of space and time. Some immense number of causal chains must interact, but all of those interactions are inevitable and predetermined, and are, in themselves, effects (events) that will in turn become causes.

All of the activities within our brains are links in causal chains. Our every thought, from the unconsciously trivial to the most concentratedly-conscious and profound, is a segment of a causal chain. Our every thought, our every action, is absolutely predetermined and inescapable.

Our decisions are inevitable, inescapable, predetermined events in causal chains. Our belief that we have free will, free choice of alternatives, that any of our decisions could have been otherwise, is an illusion.

Our minds are constructed, as the result of the pertinent causal chains, so as to be unable to recognize the inevitability of our decisions and actions. We worry, we think, we ponder, we examine, we seek alternatives, in the delusion that we can reach free decisions which affect what happens now, and therefore what will happen in the future. It is all an illusion, inevitably built into all of us, to make our lives interesting. Were we able to perceive the fact that we can not affect anything, however trivial, we would recognize that we, and all other things in all of time and space, are automatons.

ROBERT J. HANNON  
1 Oct 93

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Dear Rick,

1) In issue 85, more arrogance from Chris Cole. Whatever he disagrees with is noise. He suggests censorship to silence anyone whose views differ from his. He imposes space limitations on discussions by people who disagree with him. He alone knows truth. All else is heresy.

Who asked Chris to respond to my articles published in (85)? He is welcome to do so, as is anyone else, but he must get off his high horse to enter the fray. I will always welcome objective, scholarly argument, but I long ago had received enough crap to last far beyond my lifetime.

Rick, you are the Editor of NOESIS. You've always been completely open-minded. It would be a great tragedy for you bow to pressures for censorship. You sometimes publish papers I find uninteresting or with which I disagree, but they always give me different views, which I greatly appreciate. The purpose of NOESIS should continue to be the free exchange of views among sophisticated people. Please, continue to publish everything submitted!

There are many highly-qualified scientists who question Special and/or General Relativity. These people can not obtain publication of their alternative views in the "professional" journals because their views are "wrong" (= heretical) in the eyes of the establishment. If either of these theories is disproven, a major portion of modern theoretical physics will become fallacy. Theories, books, articles, dissertations, and reputations will be invalidated by the thousands. The credibility of physics will be severely shaken. It may be rational for the establishment to protect itself from such a calamity, but it is not intellectually honest.

## 2) Reply to Chris Cole (85)

a) Your "gedanken experiment" in which you attempted to "demonstrate" time dilation is inconsistent with the basic philosophy of the Lorentz Transformation. Time in the LT is a mathematical dimension. It exists and has values whether measured or not. Its values are determined by mathematical relationships, and nothing else. It is not determined by "clocks" or the mechanics of clocks, or zigzag motions of clocks. Einstein used the term "clock" only as an analogical manifestation of the temporal metric. I wrote to you privately to discuss that with you, and apparently committed the sin of lese majesty in doing so. I must learn to remember that you are always unquestionably correct in your views on any subject.

b) I don't want anyone to do anything except prove my

straightforward algebraic arguments are invalid. If I am correct, Special Relativity is a fallacy based on misinterpretation of the physical meanings of unfinished algebra.

Chris, I suggest that you may find it edifying to study Einstein's derivation of his "Transformation of Co-ordinates", which we now call the Lorentz Transformation. It is contained in Section 3 of Einstein's paper ON THE ELECTRODYNAMICS OF MOVING BODIES, Annalen der Physik 17, 1905, also published in English in THE PRINCIPLE OF RELATIVITY, Albert Einstein et al, Dover Publications Inc, NY. I'll be happy to send you a copy on request. I also suggest you study some of the many other derivations of the LT (a good source is SPACETIME AND ELECTROMAGNETISM, JR Lucas and PE Hodgson, Oxford University Press, 1990). Without exception, all are predicated (explicitly or implicitly) on:

$$(1-1) \quad x/t = C = x^*/t^*$$

It is logically impossible to derive the LT without (1-1) or its equivalent. (1-1) is the absolutely-essential algebraic statement of the postulate that C is the same in all IFRs.

(1-1) is the sole definition of the relationships among  $x$ ,  $t$ ,  $x^*$ ,  $t^*$  and  $C$  that will be found in any derivation of the LT, noting that  $V = \beta C$ , where  $\beta$  is a dimensionless number. (1-1) is the basis of the derivation of the LT:  $x/t$  and  $x^*/t^*$  can not take on values other than  $C$  after the fact.

(1-1) does not represent a particular event nor is it confined to a particular experiment. (1-1) defines a straight line in the Euclidian cartesian coordinates  $x$  and  $t$  of IFR-K, and the identical line in the Euclidian cartesian coordinates  $x^*$  and  $t^*$  of IFR-K\*. It represents an infinity of points, but it excludes at least an Aleph-one of other points. It is the fundamental algebraic predicate of all derivations of the LT. (1-1) is stated in the coordinates used by Einstein and others in their derivations. In his derivation Einstein notes, "...that instead of the origin of the co-ordinates we might have chosen any other point for the point of origin of the ray..."

To term my substitution of (1-1) into the LT equations "nonsensical" reveals your lack of knowledge of the simple algebraic derivation of the LT. That substitution is required to properly complete the algebra. If there is anything "nonsensical" it is the virtually-universal but incorrect assumption that the LT is applicable to all values of the ratios  $x/t$  and  $x^*/t^*$ , in direct violation of its fundamental predicate, (1-1).

You seem not to comprehend that  $x$  and  $x^*$  (and  $t$  and  $t^*$ ) are corresponding metrics (which means "standards of measurement") of two IFRs. Physically, it doesn't matter where a meter or a second is located relative to its respective coordinate origin. If  $x$  is a meter in IFR-K,  $x^*$  is a meter in IFR-K\*; if  $t$  is a second in IFR-K,  $t^*$  is a second in IFR-K\*.  $x$  is identical with  $x^*$ , and  $t$  with  $t^*$ , when  $V=0$ . Einstein presumed that  $x$  may appear to differ from  $x^*$  (and  $t$  from  $t^*$ ) when  $V>0$ .

(1-1) permits  $x$  to assume any value, or for  $t$  to assume any



value. (1-1) permits  $x$  to assume any value, or for  $t$  to assume any value. However, (1-1) requires that the ratio  $x/t$  must always equal the ratio  $x^*/t^*$  and that both ratios must always equal  $C$ .

My Completed LT equations:

$$(1-2) \quad x^* = x \left[ \frac{C-V}{C+V} \right] = x \left[ \frac{(1-\beta)}{(1+\beta)} \right]$$

$$(1-3) \quad t^* = t \left[ \frac{C-V}{C+V} \right] = t \left[ \frac{(1-\beta)}{(1+\beta)} \right]$$

are not just replacements for the LT. (1-2) and (1-3) **entirely supersede** the mathematically-incomplete conventional LT. They are the proper algebraic end-result of all derivations of the LT. Such completion is required by correct algebra. The algebraically-unfinished Einstein-Lorentz equations vanish in the process of completing the algebra.

Like the incomplete conventional LT equations, (1-2) and (1-3) apply only to events/points **permitted** by (1-1), that is, events in which  $x/t = x^*/t^* = C$ . Like the incomplete conventional LT equations, (1-2) and (1-3) **must** be evaluated simultaneously.

My arguments are purely **algebraic**, and can be refuted only by valid **algebraic** proofs. Authoritarianism, bluster, pissing contests, "intuition", and calumny have no meaning and serve no purpose but to mask ignorance.

I challenge you, Chris, (and anyone else) to rigorously derive the conventional LT without (1-1) or its equivalent, remembering that all terms must be algebraically defined, and that the postulate that  $C$  is the same in all IFRs must be integral to the algebra.

Since writing **COMPLETING THE LORENTZ TRANSFORMATION**, further study of Einstein's derivation has revealed an even more comprehensive and invalidating mathematical flaw, which I discuss in my **THE EINSTEIN-LORENTZ TRANSFORMATION**. I will welcome your **objective, scholarly** discussion of this subject.

c) Regarding Black Holes: the mathematics of Schwarzschild's External Solution to Einstein's TGR Field Equations makes it crystal clear that no **true** Black Hole can exist in this universe until an infinite period of time has passed. 10-20 billion years is trivial compared with infinity. If Schwarzschild and Einstein are right, a true Black hole will never be found in our universe regardless of how long it may endure, short of infinite time. This does not mean that super-massive, super-dense objects may not exist. But they can not be true Black Holes, not even Gray Holes.

d) Regarding your inferences about George Dicks' paper: Georg Cantor has (theoretically) shown that, despite the fact that "infinite" means "increase without limit", there are sets of numbers whose membership is infinitely greater than what we call "infinite". He showed that there is an unlimited array of such sets, each "infinitely" greater than its predecessor. Surely you remember that algebraically:  $(\infty \pm \infty) = \infty$ ; and  $(\infty \times \infty) = \infty$ ; and  $\infty / \infty = \infty$ . Infinity is unchangeable. Cantor's transfinite mathematics is predicated on very specific rules of counting; if those rules are scrupulously observed, Cantor's results are self-consistent.

### 3) In reply to Bob Dick (85):

Fourier's theory (not an) says that a wave whose that has a repeating pattern is the sum of a set of perfect sine-waves. While Fourier's theory is a mathematical construct which, like all such, assumes perfection not met in reality, it has been proven both mathematically and experimentally to be "true".

Your view regarding the necessity to include the past is interesting but I don't believe it is borne out by Fourier's theory. As I remember it, that theory involves only the future relative to the starting time of a wave. The past, prior to the start of the wave, is not pertinent simply because, by definition, the wave had no existence prior to that time. Mathematically, this is analogous to a "choice of coordinates". Of course, one must wonder why the future then seems "more important" than the past. Perhaps it implies that causality in the present-to-past ("negative") direction has no real meaning, implying that time "moves" only in the present-to-future ("positive") direction?

This subject has interesting implications relative to Planck's Quantum Theory. If a quantum of EM energy is discrete (indeed, if it does not go on forever), it cannot be composed of EM waves of only one frequency. Yet Planck says that the energy of a quantum is  $hf$ . What then is the value of  $f$ ?

In my view, time exists only in contiguous "quanta" having a duration of the order of  $10^{(-30)}$  sec. A "quantum" of time is simply the shortest interval of time that can exist, other than zero. Only that interval has any real existence; all greater intervals are integral multiples thereof. Our senses can't perceive a quantum of time. Our instruments still can not resolve such short intervals. There is a reason why time "moves" only in the futureward direction.

I think I made it clear that we don't have the technology to make Signal Generators that produce absolutely perfect, harmonic-free sine waves. If we ever achieve (or adequately approach) such technology, we will be able to prove whether or not the future is determinate.

I didn't imply that Wave Analyzers/Spectrum Analyzers can predict the future. I said only that such instruments can measure the amount of each harmonic present in any wave. As of circa 1973, we had the technology (Digital Fast Fourier Transform and Digital Convolver) to accurately identify/determine all time-related characteristics of the individual pulses comprising short bursts of "identical" pulses, buried 30 dB below same-spectrum random EM noise (a power noise-to-signal ratio of 1000), using data extracted from only three such pulses-plus-noise. Reasonably reliable identification of a critical property of such pulses-plus-noise can be achieved with only one pulse. Of course, these pulses have unique properties.

The "past" to which you refer in your par 3 was "the present" at the instant of measurement. "The present" is the precursor of "the future", if the universe is deterministic. There is zero factual evidence that the universe is not deterministic, at any

level.

4) To Richard May (85)

THINKING ON THE EDGE is a **censored** book. The pre-publication promise was that all papers submitted to the ISPE Symposium would be published. There were over 20 papers on science submitted, but only one was published. I have read most of the censored-out works. All were well-written and logical. Most were unorthodox or heretical. Without the consent of their authors, all were submitted to a member of the science establishment, who, as must be expected, condemned all but the single entirely-conventional one to oblivion.

The resulting book is well produced. It contains a few very well-written pieces, including yours and Monty Walker's. It does not contain a single original idea.

Best regards,

A handwritten signature in cursive script, appearing to read "Robert J. Hannon".

Robert J. Hannon

## Intelligence and Intelligence Testing

### KEVIN LANGDON'S SHORT FORM INTELLIGENCE TEST

People have noticed variations in intelligence among members of the human species for as long as they have lived in communities; references to intelligence and stupidity are found in the literatures of all peoples. Formal intelligence testing, however, began only a little more than a century ago with the work of Sir Francis Galton in England, followed by that of Alfred Binet in France.

I.Q. was originally defined as "mental age" (as measured by tests of proficiency at a variety of intellectual tasks) divided by chronological age. As mental ability does not increase linearly with age, particularly after the age of majority, a different construct for I.Q. has come into general use which relates it to the shape of the normal curve, with the mean of the general population defined as I.Q. 100 and the standard deviation (a measure of displacement from the mean) as (usually) 16 points of I.Q. Naturally, scores on particular I.Q. tests depart, to a greater or lesser extent, from the ideal definition.

From the early years of intelligence testing, there has been a debate, which continues to the present, as to whether intelligence is a unitary phenomenon or is an aggregate of many special abilities. There have been many theories, from J.P. Guilford's classification which distinguishes 120 factors to Howard Gardner's more recent model of seven independent kinds of intelligence.

In the 1920's, Charles Spearman proposed that there is a "general factor," which psychometricians call *g*, which accounts for the lion's share of variability in performance on such dissimilar intellectual tasks as arithmetic computation, verbal analogies, analysis of problems presented in text passages, and spatial figure analysis and comparison. Statistical analysis of performance on such dissimilar measures has yielded the surprising result that more than half the variance in performance on cognitive tasks can be accounted for by *g*. There are undoubtedly various noncognitive abilities, such as empathy and imaginativeness, that are less well correlated with *g*.

There is substantial evidence, based primarily on studies of identical twins raised apart, that *g*, like many other traits, is largely genetically determined. While Sir Cyril Burt, the author of a number of the early studies of this question, has been accused of manufacturing some of his data, the studies have been so thoroughly replicated that this is scientifically irrelevant. The results outlined above are not even controversial in the field of psychometrics, though many "experts" outside the field have falsely represented that they are and even that the idea of intelligence has been scientifically discredited. These notions are based on wishful thinking and "political correctness" and have no basis in fact.

Standard intelligence and aptitude tests, such as the *Stanford-Binet*, the *Wechsler Adult Intelligence Scale*, the *Army General Classification Test*, the *Cattell Verbal* (used by *Mensa*), the *Scholastic Aptitude Test (SAT)*, and the *Raven Progressive Matrices*, cannot discriminate accurately above approximately the one-in-five-thousand level of the adult population.

Driven by the need for selection instruments for the super-high-I.Q. societies, a number of investigators began to develop new instruments to measure intelligence at the high end of the ability distribution, starting in the 1970's. Kevin Langdon, the author of the *LAIT* and the *LSFIT*, is a technical writer and editor, science journalist, software developer, game inventor, seminar leader, guitarist and songwriter. After becoming a member of the International Society for Philosophical Enquiry (99.9th percentile) in the mid-1970's, he became interested in whether it would be possible to establish a still-more-exclusive society. Concluding that no existing instrument was sufficiently sensitive at the target level, four standard deviations above the mean (99.997th percentile), he devised the *LAIT*, originally published in 1977 and reprinted in *Omni* in 1979, which is widely considered the purest available measure of *g* for the highly gifted.

These new tests, of which the *LAIT* and the *LSFIT* are examples, are generally administered by mail, without time limits, and are capable of discrimination up to the one-in-100,000 level or higher. The most convincing evidence that they are successful in doing so is the marked differences in the intellectual level of the journals of the societies which use different cutoff levels for admission.

Recommended reading:

*Bias in Mental Testing*, by Arthur R. Jensen (The Free Press, 1980).

*Psychological Testing and Assessment*, by Lewis R. Aiken (Allyn and Bacon, 1982).

# Langdon Short Form Intelligence Test

by Kevin Langdon

This is a test of attention in reasoning, designed to discriminate from the mean of the general population to approximately four standard deviations above the mean. It is primarily derived from the *Langdon Adult Intelligence Test*, which was published in *Omni* in 1979, has been taken by over 25,000 people, and is used for admission purposes by the Top One Percent Society (99th percentile), the Triple Nine Society (99.9), the One-in-a-Thousand Society (99.9), the Four Sigma Society (99.997), the Prometheus Society (99.997), and the Mega Society (99.9999?).

No special knowledge is required for solving the problems comprising the test beyond fluency in English.

The test is to be completed without the assistance of reference materials or consultation with other persons. There is no time limit.

For each item, the penalty for a wrong answer is one-fourth the credit for a right answer. Each item has one correct answer; items with more than one alternative marked will be counted wrong.

Write the letter of your answer for each item on the answer sheet below or a copy. Please supply the information requested; this data, and your score on the test, will be held in the strictest confidence.

Return your answer sheet, with \$8 for scoring (U.S. funds), to:  
*Polymath Systems, P.O. Box 795, Berkeley, CA 94701.*

You will receive a score report listing your scaled score, tested group and general population percentile, and I.Q., and a statistical report on the test. *Only answer sheets postmarked in 1993 will be scored.*

We cannot provide clarification or explanation of the test items prior to the end of scoring, as this would compromise test security.

Additional copies of this test may be obtained for \$1 from Polymath Systems.

## Answer Sheet

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_ Sex \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Memberships in High-I.Q. Societies \_\_\_\_\_

Previous I.Q. and Aptitude Test Scores:

Test	Score(s)
_____	_____
_____	_____
_____	_____
_____	_____

Fig Anal Ext Fig Vocabulary Fig Ser Misc Spat

1. \_\_\_\_\_ 6. \_\_\_\_\_ 11. \_\_\_\_\_ 16. \_\_\_\_\_ 21. \_\_\_\_\_ 26. \_\_\_\_\_

2. \_\_\_\_\_ 7. \_\_\_\_\_ 12. \_\_\_\_\_ 17. \_\_\_\_\_ 22. \_\_\_\_\_ 27. \_\_\_\_\_

3. \_\_\_\_\_ 8. \_\_\_\_\_ 13. \_\_\_\_\_ 18. \_\_\_\_\_ 23. \_\_\_\_\_ 28. \_\_\_\_\_

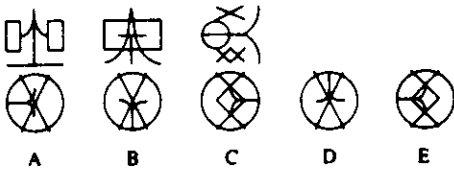
4. \_\_\_\_\_ 9. \_\_\_\_\_ 14. \_\_\_\_\_ 19. \_\_\_\_\_ 24. \_\_\_\_\_ 29. \_\_\_\_\_

5. \_\_\_\_\_ 10. \_\_\_\_\_ 15. \_\_\_\_\_ 20. \_\_\_\_\_ 25. \_\_\_\_\_ 30. \_\_\_\_\_

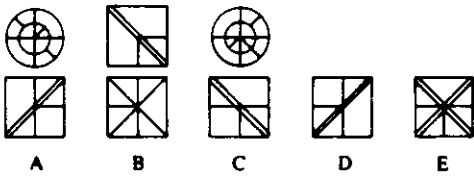
**PART ONE  
FIGURE ANALOGIES**

**INSTRUCTIONS:** Each item consists of three figures on one line, followed by five lettered figures on the line below. Choose the letter of the figure that is related to the third figure on the first line in the same way that the second figure is related to the first.

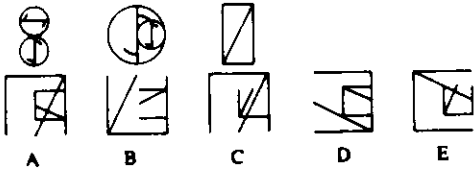
1.



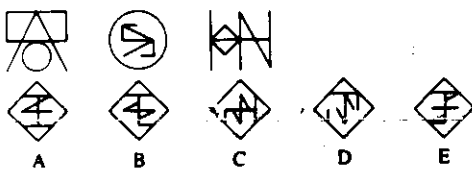
2.



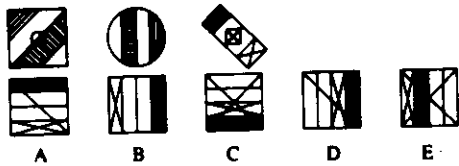
3.



4.



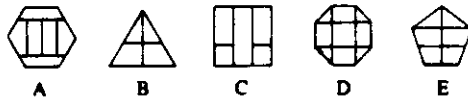
5.



**PART TWO  
EXTRANEOUS FIGURES**

**INSTRUCTIONS:** For each item, choose the letter of the figure that does not belong with the other four.

6.


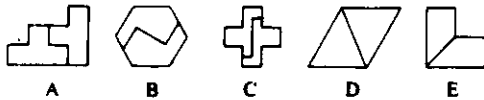


7.



8.



9. 
10. 

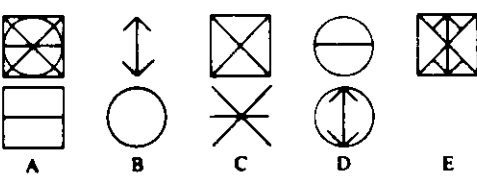
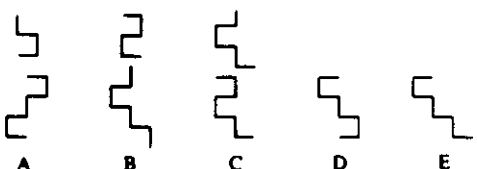
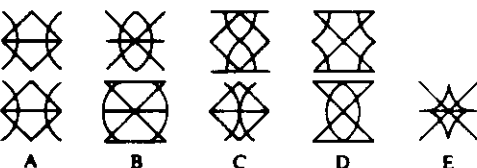
### PART THREE VOCABULARY

INSTRUCTIONS: Each item consists of two words on one line, followed by five lettered words on the line below. Choose the letter of the word on the second line that is not a synonym for either of the words on the first line.

11. set pass  
A. impose B. invert C. adjust D. happen E. pronounce
12. render port  
A. translate B. carry C. melt D. settle E. left
13. state mind  
A. object B. interpret C. ceremonial D. opinion E. express
14. mean register  
A. range B. intend C. condition D. poor E. align
15. check stock  
A. enter B. restrain C. broth D. draft E. security
16. bear subject  
A. cast B. prone C. head D. expose E. stand
17. sound spring  
A. measure B. warp C. release D. logical E. scale
18. pitch charge  
A. responsibility B. potential C. angle D. term E. frequency
19. post tear  
A. mail B. rend C. race D. station E. lose
20. file strain  
A. abrade B. mark C. filter D. variety E. queue

### PART FOUR FIGURE SERIES

INSTRUCTIONS: Each item consists of a sequence of figures on one line, followed by five lettered figures on the line below. Choose the letter of the figure on the second line that continues the progression of the first line.

21. 
22. 
23. 

24. 
  
A B C D E

25. 
  
A B C D E

**PART FIVE  
MISCELLANEOUS SPATIAL PROBLEMS**



If a worm gnaws a hole through the eight-cube solid shown above, starting with cube 1 and passing through each cube exactly once, without crossing any boundary where more than two cubes meet, which cube or cubes of those marked 2, 3, and 4 can it emerge from?

- A. only 2    B. 2 or 3    C. 2 or 4    D. 3 or 4    E. 2, 3, or 4

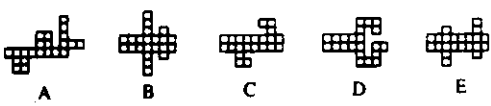


If three gallons of paint are required to paint all sides of one cube, how many gallons will be required to paint all exterior surfaces of the figure shown? (Three cubes in the lower right rear corner are not visible.)

- A. 19    B. 20    C. 21    D. 22    E. 23



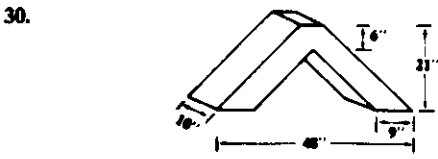
Which of the following could be folded to make the six cube solid shown above? (Ignore the difference in scale.)



The large solid figure at the left above is taken apart into three pieces. Two of the pieces are shown at the right above. Which of the following is the third piece?



E. none of the above



How high a tower can be built using seven blocks with the dimensions shown above without rotating any block more than ninety degrees from the orientation shown?

- A. under 67"    B. 67-71"    C. 72-76"    D. 77-81"    E. over 81"