

MOS ON THE NORTH SIDE

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President Reagan was shot today. I found this quite shocking. While I am less than enamored of his politics, I certainly don't wish him dead. The real shock, though, was the echo from 1963 -- I was an impressionable 15 when Kennedy was killed, and I still vividly remember the quiet subway ride home from school that November 22nd: Stunned New Yorkers on the train, passing around a few newspapers (there was hardly any news other than the fact of his death), and speaking quietly to the strangers next to them (New Yorkers only talk to strangers during a crisis).

I always said that the 20-year curse would bring out every loony to take potshots at whoever became President in 1980 (and that Ted Kennedy especially had to be suicidal to run); I've also predicted (along with Robert Silverberg) that the last years of this millenium were going to be crazy, just like the last one (except that then only Europe went crazy, with hordes of nut cults predicting the end of the world and/or the Second Coming in the year 1000). It's depressing to see it start to happen. Rock stars, little children, politicians ... Every other new movie seems to be about lurking killers ... Yes, all this and World War III too -- step right up for the end of civilization!

(And even if we survive till 1999, half of the world's computer systems will blow up from unexpected bugs when the century changes, thereby leading to a less radioactive demise.)

Maybe I can cheer up with some mailing comments:

DENYS: I promised you a math lesson, didn't I? In mailing #18 you said "'8+5=1' is a really unfair thing to throw into the discussion of math. The reason that that equation is so catchy is that it does not work with the normal definitions of those words; it only works as an equation when you specify strange and unusual definitions for them."

Let me tell you a story: When I was in 6th grade, I came across the concept of the commutative law for multiplication, namely that $A \times B = B \times A$. This struck me a stupid kind of law to have, because how could multiplication not be commutative? I asked my uncle about this. He said that it didn't have to be commutative because, for example, A and B could be matrices, and for matrices the order in which you multiplied them made a difference. I was skeptical. He demonstrated, by starting to multiply two matrices. Now, you don't have to know what a matrix is, mathematically -- you just have to know that it's a table of numbers, and the rules for multiplying two tables are hideously complicated (for instance, you multiply all the numbers in the top row of A times the numbers in the first column of B, add them all up, and get for all your effort only the single upper left corner element of the result).

Needless to say, almost as soon as he began, I interrupted him, outraged. "That's not multiplication!"

This is all by way of saying that I understand and sympathize with your reaction. Nevertheless, I was wrong and I think you are too. What the original discussion was about, if I recall, was Truth and the one single system that explains reality, likened to Euclidean geometry in fact. It's taken some thousands of years for mathematicians to realize that there are many different systems of arithmetic, geometry, set theory, or what have you that have interesting properties, and, in fact, many different models that can embody the same system.

Clock arithmetic, which is more formally known as modular arithmetic, is incredibly useful as well as being relatively accessible through the model of a clock. I could have said that " $8+5$ is congruent to 1 (modulo 12)", but in context what I was doing was perfectly understandable, wasn't it? It's 8 o'clock, and I'm starting a 5 hour trip; when do I arrive? At 1. It's even commutative (starting at 5 on an 8 hour trip comes out the same) (which is a hell of a commute). You can solve equations with it (the trip starts at 8 and ends at 1; how long does it take?). You can cling to a very narrow definition of "+" and force me to pick another symbol, but surely you would concede that clock arithmetic is a consistent system that shares many properties with ordinary addition and subtraction?

Just as geometry on the surface of the Earth shares many properties with Euclidean geometry, even if parallel lines do meet?

It's an example of the power of language to shape our thoughts -- by calling two things geometry (with an adjective) you call attention to their similarities; by not having a word for a concept, like, say, "negative number" (or "labor theory of value"?) you can be oblivious to its existence (before 1500, there was no solution to an equation such as " $X+5=3$ ").

Incidentally, if you had a table showing, for a list of products (across the top), the proportion of their cost attributable to labor, capital, etc. (down the side); and you had another table, showing the value of each of these products (listed down the side) to stockholders, the balance of trade, etc. (listed across the top); then you could produce a third table showing the value of labor, capital, etc. to stockholders, the balance of trade, etc. You do this by multiplying the two tables together, according to the rules of matrix multiplication. Which is not commutative.

DAVID: "Slipsheet", as a verb, refers to the action of inserting something between successive mimeographed pages to absorb the ink, so as to avoid set-off onto the next page; crud-sheets, cardboard, or even rice have been used. The interleaved objects must, of course, be removed before collating. The past tense of the verb, using the strong declension, is in common usage applied only to crudzines. Bowdlerized dictionaries, however, usually give this form as "slipshod".
