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# NEW NAMES FOR NUMBERS, COMPUTER-STYLE

In the world of computers, a communication gap has existed for some time - not the gap between computer people and the world at large, but a gap between computer people and computer people. ("And it serves them right," says the world at large.)

The problem is with our vocabulary for numbers. All of us grow up speaking fluent decimal, with the help of our ten good fingers. Then computers require us to change our course and we founder.

Computers cope with two digits, zero and one, otherwise known as the binary system; for example, counting 1, 10, 11, 100 for the decimal numbers 1, 2, 3, 4. The irony of our problem is that it is not concerned directly with the binary system as no one speaks binary. We speak octal, clumping three binary digits to form one octal digit, or else hexadecimal, clumping four binary digits. In octal, we use the digits 1, 2, 3, . . . 7 just as in decimal. Then we get to 10 in octal which is 8 in decimal. There our trouble starts. Octal 10 is not decimal 10. Unfortunately, octal 10 looks like decimal 10 and we computer people carelessly call it "ten".

In hexadecimal, we have even worse troubles. Hexadecimal 10 is decimal 16. What do we do in hexadecimal with decimal values 10, 11, 12, 13, 14 and 15? We designate them as digits A, B, C, D, E and F. In ancient computer days (twenty years ago), this hexadecimal designation was made by mathematicians who always have been used to getting along with very few mnemonic devices and very many interchangable definitions. They were inclined to be very precise in their use of the numbers, for example, saying one-zero or one-five rather than ten or fifteen when speaking hexadecimal. This practice has not carried down to present times.

To make a long story short, we use numbers that look like decimal numbers and we give them decimal names, and we use numbers that look like letters and we're not sure what to call them.

The solution to our numbers problem is: Update our vocabulary to match our technology. Since hexadecimal numbers present the greater challenge, we settle them first. We provide names and symbols for the currently lettered hexadecimal digits and we make the names as helpful as possible. While we're at it, we make "niner" official and we try not to introduce any new sound-alikes. Here are the hexadecimal names, related to their decimal equivalents.

Zero for zero.

One through niner, same as decimal.

Dixie for decimal 10.

Soccer for decimal 11.

Dozen for decimal 12.

Baker for decimal 13.

Stone for decimal 14.

Zoner for decimal 15.

With one or two possible exceptions, the relationship between the name and the value should be obvious but we can review all the new names.

A dixie was a ten-dollar bill widely current in Louisiana before the Civil War.

A soccer team has eleven members.

A dozen is twelve items.

A baker's dozen is thirteen items.

A stone is fourteen pounds.

"Zone" is a present-day computer-language word for a particular use of number zoner (in IBCDIC processing, to be exact). Zone alone sounds too much like stone; hence, zoner.

For our new hexadecimal symbols, we can draw from tradition again. Many years ago, a Persian (he may be an Iranian now) told me how Arabic numerals were designed. Each numeral was composed of the number of angles it represented.

1 was

2 was

3 was

4 was

5 was

6 was

7 (also known as ) was

8 was

9 was (not entirely plausible)

0 was 0 (no angles, very plausible)

As time went by, some of the angles were eroded away, obviously.

By setting up the proper number of angles for each numeral, then speeding up the erosion process, we have our new symbols.

Dixie is from

Soccer is from

Dozen is from

Baker is from

Stone is from

Zoner is from

Octal symbols are in good shape already as 0, 1, . . . 7.

This brings us to two-digit numbers. In decimal, the "teen" suffix is from "ten". Once more in keeping with tradition, we make a "hex" suffix for hexadecimal and an "ite" (from "eight") suffix for octal. Then hexadecimal 10 is hex, hexadecimal 11 is onehex, hexadecimal 1 is zonerhex. Furthermore, octal 10 is ite, octal 11 is one-ite, octal 17 is sevenite.

The other two-digit decimal numbers all have a "ty" suffix as in twenty and fifty. We soften the "X" sound in hex to an "S" sound giving us a "sy" suffix for hexadecimal and have twensy and fifsy. We use the "E" in eight giving us an "ee" suffix for octal and have twenee and fifee.

Now we have settled all problems for all numbers up to watchamacallits, 100, 101, 102 and upwards. They require thought not yet produced.

One last word: My story about the origin of Arabic numerals is true and accurate - but - I don't know if we can trust that Persian.