SPANAGRAMS

LEE SALLOWS
Nijmegen, The Netherlands

In "The New Merology" (**Word Ways**, February 1990) I discussed how distinct integers could be assigned to letters so as to produce "perfect" English number words whose gematric value is then equal to the number named. As was shown, THIRTEEN is unlucky: a consecutive run of perfect numbers cannot exceed TWELVE. The same article also examined French, for which QUATORZE turns out unlucky. Recently I decided to look at Spanish.

The Spanish cardinals begin as follows: 0 = CERO, 1 = UNO, 2 = DOS, 3 = TRES, 4 = CUATRO, 5 = CINCO, 6 = SEIS, 7 = SIETE, 8 = OCHO, 9 = NEUVE, 10 = DIEZ, 11 = ONCE, 12 = DOCE, 13 = TRECE and 14 = CATORCE. Using elementary algebra, from UNO we see that U = 1-N-O; from ONCE that C+E = 11-O-N; from DOCE that D = 12-0-(C+E) = N+1. Thus, from DOS, S = 2-D-O = 1-N-O, which is the same value as U. A consecutive perfect number run using distinct values for each letter therefore cannot exceed ONCE. In short, DOCE is unlucky.

Using a simple computer program similar to that desecribed in the previous article, the smallest set of values for perfecting CERO to ONCE then reveal themselves as:

A	C	D	E	H	I	N	O	R	S	T	U	V	Z
-9	20	4	7	10	-19	-5	-11	-16	9	3	17	-17	18

which yields:

C+E+R+O	=	20+7-16-11	=	0
U+N+O	=	17-5-11	=	1
D+O+S	=	4-11+9	=	2
T+R+E+S	=	3-16+7+9	=	3
C+U+A+T+R+O	=	20+17-9+3-16-11	=	4
C+I+N+C+O	=	20-19-5+20-11	=	5
S+E+I+S	=	9+7-19+9	=	6
S+I+E+T+E	=	9-19+7+3+7	=	7
O+C+H+O	=	-11+20+10-11	=	8
N+E+U+V+E	=	-5+7+17-17+7	=	9
D+I+E+Z	=	4-19+7+18	=	10
O+N+C+E	=	-11-5+20+7	=	11

The focus of this note, however, is less on these perfect numbers than it is on a discovery made along the way. In preparing the program to look for integer assignments, first a number of simultaneous linear equations must be solved. This is because for a given language the value of certain letters will depend on those of others, subject to spelling. The program has to know about these relations. Examining the equations involved for Spanish, certain peculiarities in the results emerging under my pencil seemed to imply that:

U+N+O + C+A+T+O+R+C+E = C+U+A+T+R+O + O+N+C+E
(1) (14) (4) (11)

irrespective of the values assigned to the letters involved.

It took me a while to digest the import of this. However, controlling my excitement, I continued with the equation solving. Ten minutes later this self-control seemed justified. The truth is that nobody is more error prone than I am when it comes to doing sums. It seemed I had fouled things up yet again since the results now coming out could only imply that:

D+O+S + T+R+E+C+E = T+R+E+S + D+O+C+E
(2) (13) (3) (12)

irrespective of the values assigned to the letters involved.

The patent absurdity of these conclusions so irritated me with my own inability to calculate that I decided to drop the whole thing until the fog had cleared from the brain. Returning to it later, however, not even three separate rechecks could disprove what seemed (and still seems) flatly incredible: in the above equations the left-hand side is a perfect anagram of the right-hand side! They are, in fact, Spanish counterparts to the well-known ONE + TWELVE = TWO + ELEVEN. That they should both sum to 15 is an extra bonus thrown in by the gods. (They remain anagrams when expressed in digits or Roman numerals, also.) The same cardinals can therefore be regrouped to form more extraordinary anagrammatic equations, such as:

30 = UNO+DOS+TRECE+CATORCE = CUATRO+TRES+ONCE+DOCE = 30
30 = UNO+TRES+DOCE+CATORCE = DOS+CUATRO+ONCE+TRECE = 30

I should be interested if any reader can supply a reference to any previous discovery of these anagrams.

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