A 5-DIMENSIONAL MAGIC DIE
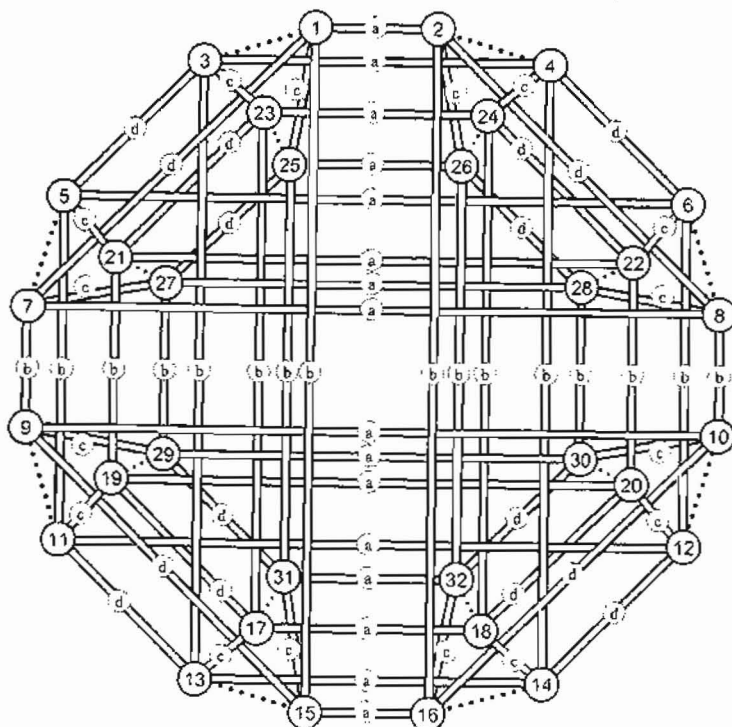
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This extends the 3-dimensional HOT-PAD and the 4-dimensional SALT-MINE dice described in "Magic Word Dice", May, 2007 to a fifth dimension (see also J. Puder's remarks in the August 2007 Colloquy). A schematic (2-dimensional!) drawing of the 5-cube follows. It is based on the word pair POLAR-MINES and every node word uses exactly one each of the five pairs 1 = P-M, 2 = O-I, 3 = L-N, 4 = A-E and 5 = R-S. On the back cover is the double torus representation that will be easiest to use for the magic.

The 32 nodes. All words in NI2 unless noted

1 POLAR	2 MOLAR
3 POLAS (Beers, Sp.)	4 MOLAS
5 POLES	6 MOLES
7 POLER	8 MOLER
9 PILER	10 MILER
11 PILES	12 MILES
13 PILAS (Batteries, Sp.)	14 MILAS (Mines, Sp.)
15 PILAR	16 MILAR (Vintage Recording Tape)
17 PINAS	18 MINAS
19 PINES	20 MINES
21 PONES	22 MONES (Nicole, novelist)
23 PONAS (Lith. Slave owner)	24 MONAS
25 PONAR (Device to scour river beds)	26 MONAR (Polish help group)
27 PONER (To put, Sp.)	28 MONER
29 PINER	30 MINER
31 PINAR	32 MINAR

The magic trick is performed as follows. The subject starts on a word-node of his choice and moves in 5-dimensions as often as he pleases, calling out the number (dimension) of the edge he travels as he does so. When he is finished, he gives the magician either the start or end node word and the magician immediately gives the missing word.

The Method. The magician simply keeps track of the five dimension numbers noting that $x+x = 0$ for all x. For example, suppose the subject calls out 4, 3, 2, 4, 1, 5, 2 and stops. The 4s and 2s cancel leaving only 3, 5, and 1. This means that the two terminal words differ in the 1st, 3rd and 5th places. So if one word was POLAR the other word would have to be MONAS.