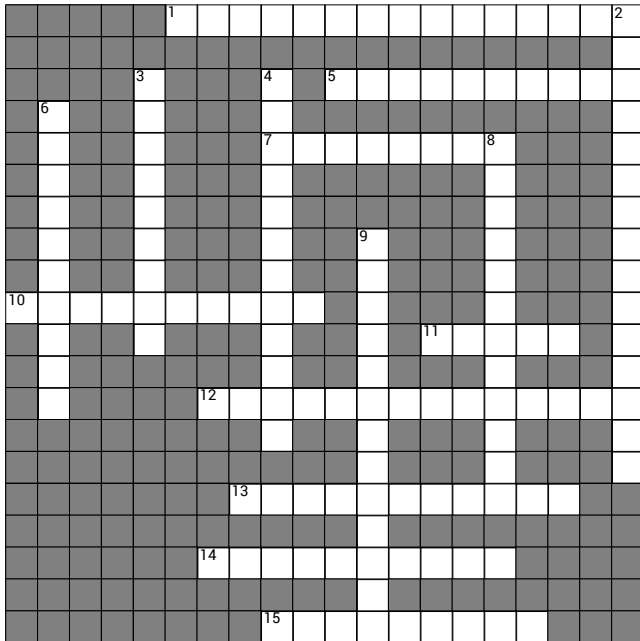


# Puzzles

## Crossword



**Across.** 1 Edit distance, but with substitutions 5 String matching algorithm, not quite Knuth-Morris-Pratt 7 Data storage, e.g. JSON formatted 10 2D array, pretty damn small 11 Method for measuring biological activity, only sounds like speech 12 Computational analysis of biological data 13 Inverse of prefix trees 14 Querying large databases, not actually in a quarry 15 Contiguous all the way

**Down.** 2 Molecules are separated by size because of an electric field in this method 3 Closer to a real snake, but still code 4 \_\_\_\_\_ model: statistical model for an ordered sequence of variables 6 Method of string matching, at the end of the alphabet 8 Levenshtein distance with less Soviets 9 Chemical reactions on tiny scales

## Takuzu

1	1			0			1		
1		1				0			1
				0		0			1
	0		1		1				
	0	0				0			
							0		
0			1		1	1		0	
		0				1			
0		0					1		
	1			1		1			0

## Brain Teasers

- A. Rabbits breed like, well, rabbits if given the chance, and in a pattern closely resembling the Fibonacci sequence.

If, at the beginning of each month each pair of reproductive age (at least two months old) rabbits produces 3 pairs of baby rabbits, how many rabbits pairs will there be after 5 months?

- B. A string  $s$  is a supersequence of another string  $t$  if  $s$  contains  $t$  as a subsequence. Given two sequences ATCTGAT and TGCATA, what is the shortest possible supersequence so that both sequences are subsequences?
- C. Squaring the first several odd numbers reveals the following pattern:  $3^2 = 8 + 1$ ,  $5^2 = 24 + 1$ ,  $7^2 = 48 + 1$ . 8, 24, and 48 are all multiples of 8. Does this pattern hold for all squares of odd numbers?

## Issue 106 Solutions

### Brain Teasers

A. rot13.

B. 9; they are 0600000001, 0170000001, 0108000001, 0100200001, 0100090001, 0100003001, 0100000401, 0100000061, or 0100000002.

C. SEVEN + SEVEN + SIX = TWENTY  $\Rightarrow 68782 + 68782 + 650 = 138214$

### Takuzu

1	0	1	0	0	1	0	1	0	1
0	1	0	1	1	0	0	1	1	0
1	0	0	1	1	0	1	0	1	0
0	1	1	0	0	1	1	0	0	1
1	0	0	1	0	1	0	1	1	0
1	0	0	1	1	0	1	0	0	1
0	1	1	0	1	1	0	0	1	0
0	1	0	1	0	0	1	1	0	1
1	0	1	0	0	1	0	0	1	1
0	1	1	0	1	0	1	1	0	0

## Crossword

						C													
		K				R		C											
F	R	E	Q	U	E	N	C	Y	A										
		R				P		E											
		C				T		S											
		K				A		A										C	
		H		V	I	G	E	N	E	R	E	C	I	P	H	E	R		
		O				A		C										Y	
		F		C			P	L	A	I	N	T	E	X	T		P		
		F		O			Y		P								T		
				L			S		H		L						O		
				O	N	E	T	I	M	E	P	A	D				G		
				S	N		S		R		N						R		
				S	T						D				K		A		
				U	R					S	H	A	O	N	E		P		
				S	O						U				Y		H		
						P		C	I	P	H	E	R				Y		
						Y					R								

■ Emily Saunders Walmsley