glisic vedran

Smarandache deconstructive sequence

is the one where the n-th turn represents number of members for each term (D(n)), starting with

n=1, m_1=1 and   n=2, m_1=2   n=3, m_1=4…

1, 23, 456, 7891, 23456, 789123, 4567891, 23456789, 123456789, 1234567891, 23456789123,…

For example m_1   and   m_n   loop in a 9 step repeating sequence: m_1 ={1,2,4,7,2,7,4,2,1}   and m_n={1,3,6,1,6,3,1,9,9}.

Here is the function I made.

First using (n^2+n)/2 for the sum of n-th turn etc.:

(n – 1)^2 + (n-1)/2 ⇒ n^2 – 2n + 1 + n – 1/2   ⇒   n^2 – n/2

so (n^2 – n/2) (mod 9) + 1   gives m_1. Let`s note that the final form is D and

D(n) = f(n), f(n)+1,… f(n)+(n-1)

The rest of D is calculated the same way for other digits, for (n-1) times (just by adding 1 to each):

$$(\underbrace{m_1, m_1 + 1, m_1 + 2,}_{\sum_{i=n-1}^{n_1+1} m_i} \dots m_n)$$

With modulo, we reduce it, very simply, to

$$f(n) = \frac{n^2 - n}{2} + 1 (mod\ 9)$$

with

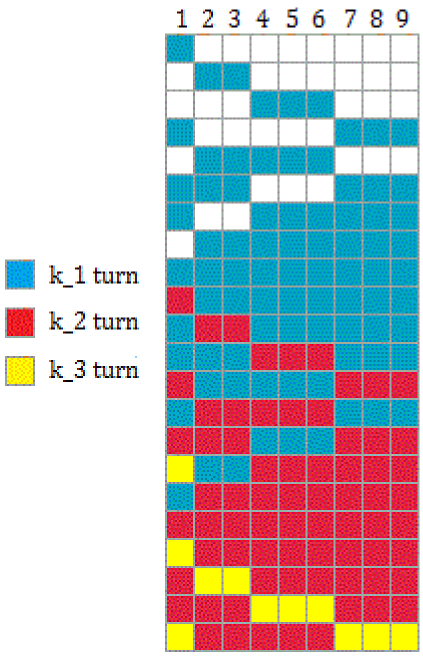
$$D_{(n)} = f_{(n)}, \dots f_{(n)} + (n - 1)\ (mod\ 9)$$

and that`s pretty much it

Self-explanatory grid of D(n) in k_n turns for the first 22 terms
(1,23,456,7891,23456,789123,4567891,23456789,123456789,1234567891,23456789123,45678
9123456,7891234567891,

23456789123456,789123456789123,4567891234567894,56789123456789123,45678912345678
9123,4567891234567891234,

567891234567891234 56,547891234567891234567,8912345678912345678912):



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