

# Cinquante signes

## Fibostracci



septembre 30, 2022



(*Stracci* is a kind of lasagna – [see here](#): "Al plur., *stracci*, tipo di pasta fatta in casa, tagliata in forma di lasagne di cui è anche simile l'impasto, rammorbidito però con un po' di latte o di olio; è in uso spec. in Liguria e nel Piemonte".)

We start  $S$  with  $a(1) = 0$  and  $a(2) = 1$ .

As 0 and 1 share no digit we add them and **extend  $S$  with the sum**:

$S = 0, 1, 1, \dots$

As the last two integers share at least one digit, we don't add them and **extend  $S$  instead with the smallest integer not yet in  $S$** :

$S = 0, 1, 1, 2, \dots$

As 1 and 2 share no digit, we add them and **extend  $S$  with the sum**:

$S = 0, 1, 1, 2, 3, \dots$

As 2 and 3 share no digit, we add them and **extend  $S$  with the sum**:

$S = 0, 1, 1, 2, 3, 5, \dots$

Then:

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, \dots$

As the last two integers share at least one digit, we don't add them and **extend S instead with the smallest integer not yet in S:**

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, \dots$

Then:

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, \dots$

As 25 and 29 share the digit 2, **we get:**

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, 6, \dots$

Then:

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, 6, 35, 41, 76, 117, \dots$

As 76 and 117 share the digit 7, **we get:**

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, 6, 35, 41, 76, 117, 7, \dots$

As 117 and 7 share the digit 7, **we get:**

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, 6, 35, 41, 76, 117, 7, 9, \dots$

Then:

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, 6, 35, 41, 76, 117, 7, 9, 16, 25, 41, 66, 107, 173, \dots$

Etc.

I guess we quickly have (if I'm not wrong):

$S = 0, 1, 1, 2, 3, 5, 8, 13, 21, 4, 25, 29, 6, 35, 41, 76, 117, 7, 9, 16, 25, 41, 66, 107, 173, 10, 11, 12, 14, 15, 17, 18, 19, 20, 39, 59, 22, 81, 103, 23, 24, 26, 27, 28, 30, 58, 88, 31, 119, 150, \dots$

**Question:**

Will the proportion red integers/blue integers increase for ever – or stabilize at some point? [the **blue** integers are the sums  $a(n-1) + a(n)$ , the **red** integers are not (except the first **2**)].

Best,

É.



**MFH** 8 décembre 2022 à 12:44

Yes. On one hand, almost all numbers have all digits 0-9 (only 0% of all numbers don't have all digits! Remember that all but a finite number of numbers have only  $< 10^{10^k}$  digits, for any  $k...$ ) But even much earlier, the red numbers outnumber the blue ones: up to  $n = 1000$ , we have less than 60 blue numbers (there are only 5 between  $n=300$  and  $n=500$  and 7 more up to  $n=1000$ ), up to  $n = 10^4$ , there are only about 15 more blue numbers.

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**icarusvinci** 27 décembre 2022 à 14:06

I added some information at OEIS A357048. Went to A359128(1.. $10^9+50$ ) and extended sequence to 140 terms. Have a dataset ( $n, A359128(n)$ ) for those terms that follow the nonintersecting digit-set axiom (and are thus sums). You all probably already know this, though. (M. De Vlieger).

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## A square for three (chess)

juin 22, 2024



(English translation after the French text) Voici cinq problèmes d'échecs disjoints : a ) combien faut-il de coups au minimum pour que trois pions soient capturés sur la même case ? b ) trois tours c ) trois c ...

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## Le tripalin se présente

*avril 11, 2024*



Un tripalin est constitué de trois images. Chaque image illustre un substantif. Accolés, ces trois substantifs forment une chaîne palindromique. Laquelle nous vous invitons à trouver. Exer ...

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## Some strings au cinéma Galeries

*juillet 19, 2024*

Lettre ouverte au cinéma Galeries Bonsoir à tous, Je viens de voir pour la seconde fois chez vous le beau film de Léos Carax (la première fois c'était le 26 juin en présence du réalisateur, au BRIFF). Apparus à l'écran aujourd'hui, avant la projection propre ...

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