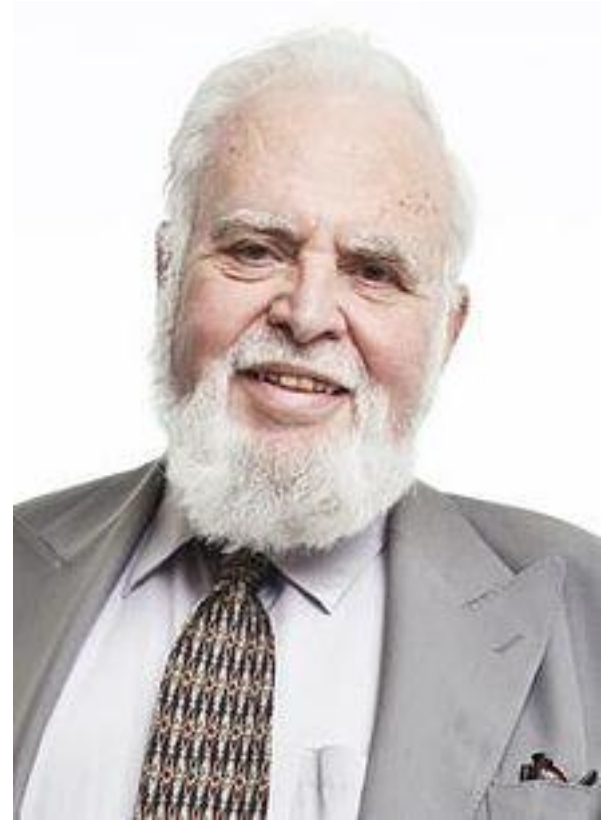


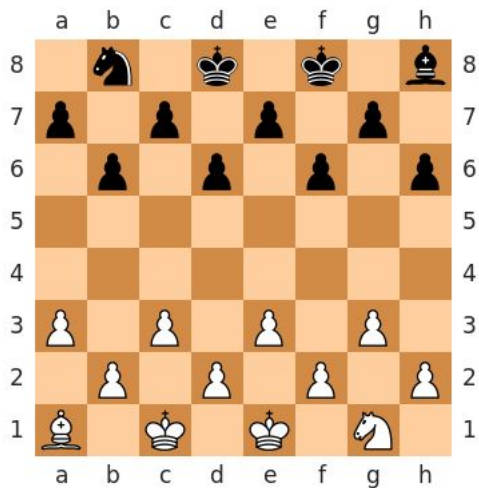
Solomon Golomb

(1932-2016)

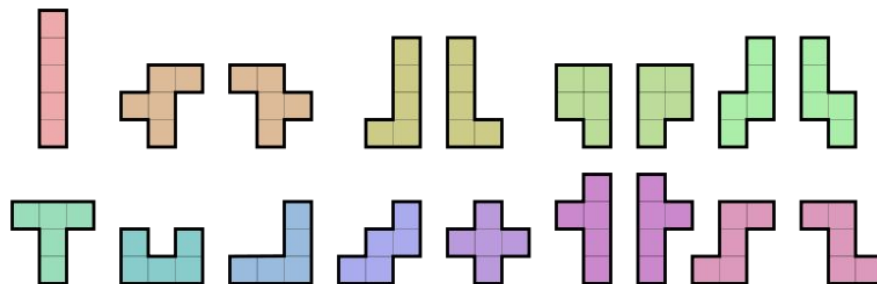
“I’m proud that I’ve lived to see... so many of the things that I’ve worked on being so widely adopted that no one even thinks about where they came from.”



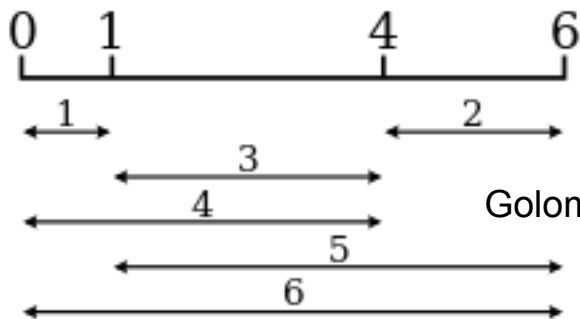
Popularised by Golomb



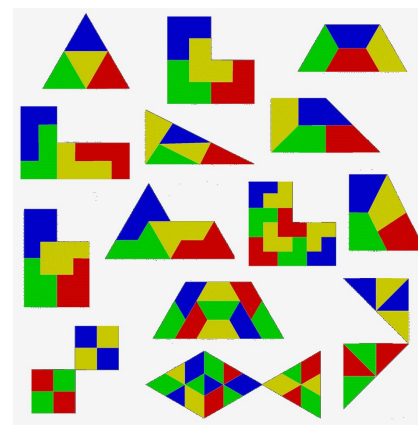
Cheskers



Polyominoes



Golomb rulers

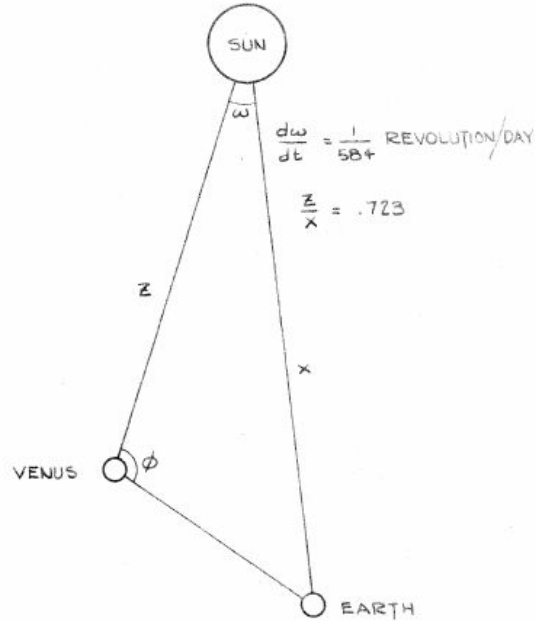


Rep-tiles

Serenading Venus



Venus
(Courtesy NASA/JPL-Caltech.)



SUN-VENUS-EARTH GEOMETRY



Goldstone Tracking Station,
Mojave desert, California, 1960
(Courtesy NASA/JPL-Caltech.)



Golomb (left) holding a picture of the newly discovered 92 by 92 Hadamard matrix in 1961 (Image courtesy NASA/JPL-Caltech.)

Linear Feedback Shift Registers

$F(n) := F(n-1) + F(n-2)$: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144 ...
(Fibonacci sequence)

$a(n) := a(n-1) + a(n-2) \pmod{2}$: 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0 ...
(Fibonacci modulo 2)

Linear Feedback Shift Registers

$F(n) := F(n-1) + F(n-2)$: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144 ...
(Fibonacci sequence)

$a(n) := a(n-1) + a(n-2) \pmod{2}$: 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0 ...
(Fibonacci modulo 2)

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

$b(n) := b(n-3) + b(n-5)$: 1 0 1 0 0 0 0 1 0 0 1 0 1 1 0 0
1 1 1 1 1

If the device is started with five consecutive pulses, the following pattern of pulses and no pulses (ones and zeros) will be generated:
1 1 1 1 1 0 0 0 1 1 0 1 1 1 0 1 0 1 0 0 0 0 0 1 0 0 1 0 1 1 0 0 (repeat).

Useful autocorrelation properties

+1 +1 +1 +1 +1 -1 -1 -1 +1 +1 -1 +1 +1 +1 -1 +1 -1 +1 -1 -1 -1 +1 -1 -1 +1 -1 +1 +1 -1 -1 +1 +1 +1 ...

×

+1 +1 +1 +1 +1 -1 -1 -1 +1 +1 -1 +1 +1 +1 -1 +1 -1 +1 -1 -1 -1 +1 -1 -1 +1 -1 +1 +1 -1 -1



Σ

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