p-value in relation to examples of S-value

Surprisal value S	Bits of information	$p = {}^1\!/_{2^s} = 2^{-s}$ as fraction	as decimal
0	0 bits of information	${}^1\!/_1$	1
1	1 head on a toss of 1 coin	${}^1\!/_2$	0.5
2	2 heads on a toss of 3 coins	${}^1\!/_4$	0.25
3	3 heads on a toss of 3 coins	${}^1\!/_8$	0.125
4	4 heads on a toss of 4 coins	${}^1\!/_{16}$	0.0625
5	5 heads on a toss of 5 coins	${}^1\!/_{32}$	0.03125
6	6 heads on a toss of 6 coins	${}^1\!/_{64}$	0.015625
7	7 heads on a toss of 7 coins	${}^1\!/_{128}$	0.0078125
8	8 heads on a toss of 8 coins	${}^1\!/_{256}$	0.00390625
9	9 heads on a toss of 9 coins	${}^1\!/_{512}$	0.001953125
10	10 heads on a toss of 10 coins	${}^1\!/_{1,024}$	0.0009765625
20	20 heads on a toss of 20 coins	${}^1\!/_{104,8576}$	0.000000953674
25	25 heads on a toss of 25 coins	${}^1\!/_{33,554,432}$	0.000000029802322
50	50 heads on a toss of 50 coins	${}^1\!/_{1,125,899,906,842,620}$	0.0000000000000009